Author Index to Volume 46

References with (A) are abstracts of papers presented at meetings of the Optical Society of America; (T) papers presented by title only; (L) indicates Letters to the Editor. It will be noted that there are no references to "see someone else" in the Author Index. Although it has meant a little duplication, there has been included under each author all articles in which he was author or co-author. All articles in which the author has participated are arranged in the chronological order of publication. A bibliography with author names arranged as in the original article is obtained by insertion of the author's name in the indicated (——) space under each indexed name. Although not strictly an authored article, we have included Book Reviews both under the book author as well as the reviewer (see also Book Reviews under the Subject Index).

Adams, Kenneth B.
—— **and Keivin Burns.** Vacuum interferometer and cadmium oven—36
Burns, Keivin and ——. Energy levels and wavelengths of natural cadmium and of cadmium-114—94
Adams, Richard M. and J. J. Katz. New variable thickness infrared cell and the infrared spectra of HF, DF, H_2O, and D_2O—895
Adelstein, S. James
Baker, Milton R., ——, and Bert L. Vallee. Physical basis of line enhancement in argon and krypton—138
Adler, Helmut E.
Herrick, Robert M., ——, John E. Coulson, and Gerald L. Howett. Detection of separations between adjacent signals on a simulated PPI radar scope—861
Allen, Eugene. Improved method of integrating curves obtained on a General Electric type recording spectrophotometer—430
Alpern, Mathew and John J. Faris. Luminance-duration relationship in the electric response of the human retina—845
Andrew, James F. Infrared response of pyrolyzed organic films—209
Anselone, P. M. and F. Sobel. Shielding of radiation from a plane circular source—934
Armington, John C. and William R. Biersdorf. Flicker and color adaptation in the human electroretinogram—393
Ashburn, Edward V. and Rodney G. Weldon. Spectral diffuse reflectance of desert surfaces—583
Averbach, Emanuel
Hake, Harold W. and ——. Spatial effects in foveal brightness discrimination—274

Badawy, Y. K. M.
Ishak, I. G. H., I. M. H. Hefzalla, and ——. Role of convergence in stereoscopic vision—303(L)
Baez, Albert V. Is resolving power independent of wavelength possible? An experiment with a sonic "macroscope"—901(L)
Baird, K. M.
—— **and K. H. Hart.** Excitation of mercury-198 in a liquid nitrogen cooled hollow cathode lamp—304(L)
—— Book review of *An Introduction to Interferometry* by S. Tolansky—908
Baker, Charles A., Anthony Debons, and Dominic F. Morris. Dark adaptation as a function of the intensity and distribution of light across the preadaptation field—401
Baker, H. Dean
Tea, Peter L., Jr., and ——. New detector unit for irradiance measurements, utilizing an integrating sphere and a photomultiplier tube—875
Baker, Milton R.
Vallee, Bert L. and ——. Anode temperatures and characteristics of the dc arc in noble gases—77
——, S. James Adelstein, and Bert L. Vallee. Physical basis of line enhancement in argon and krypton—138
Baldwin, M. W., Jr., and G. Nielsen, Jr. Subjective sharpness of simulated color television pictures—681
Ballard, Stanley S.
——, Edgar P. Slack, and Erich Hausmann. *Physics Principles* (Book). Reviewed by Harold P. Knauss—363
Barlow, H. B. Retinal noise and absolute threshold—634
Barnhart, Philip E., W. M. Protheroe, and James Galli. Direct observation of element motion in stellar shadow patterns—904(L)
Barr, William L. and F. A. Jenkins. Multilayer films for the ultraviolet—141(L)
Bartlett, Neil R.
Johnson, E. Parker and ——. Effect of stimulus duration on electrical responses of the human retina—167
Bass, Arnold M.
Kostkowski, Henry J. and ——. Slit function effects in the direct measurement of absorption line half-widths and intensities—1060
Bateman, J. B.
Mattuck, R. D., R. D. Petti, and ——. Stepped interference reflector for determining the optical constants of nonabsorbing unimolecular films. II. Experimental—782
Baumeister, Philip W. and John M. Stone. Broad-band multilayer film for Fabry-Perot interferometers—228(L)
Baxter, Lincoln, II, A. S. Makas, and W. A. Shurcliff. Measuring spectral properties of high-extinction polarizers—229(L)
—— On the properties of polarization elements as used in optical instruments. III. Angular aperture functions of a positive dichroic film polarizer—435
Beevers, R. B.
—— **and G. K. T. Conn.** Simple comparison reflectometer—996(L)
——, G. K. T. Conn, and J. Hampson. Simple monochromator for the infrared—997(L)
Bell, Ely E. and Leonard Eisner. Infrared radiation from the White Sands National Monument, New Mexico—303(L)
Bellamy, L. J. *The Infrared Spectra of Complex Molecules* (Book). Reviewed by J. M. Vandenbelt—909
Bennett, H. E.
Rank, D. H., J. M. Bennett, and ——. Measurement of interferometric secondary wavelength standards in the near infrared—477
Bennett, J. M.
Rank, D. H., ——, and H. E. Bennett. Measurement of interferometric secondary wavelength standards in the near infrared—477
Bennett, Robert B.
Ch'en, Shang-Yi, ——, and Oleg Jefimenko. Absorption bands of rubidium due to the presence of foreign gases—182
Berg, W. F. *Exposure* (second edition) (Book). Reviewed by Lloyd E. Varden—1001
Berning, Peter H. Note concerning multiple reflections within absorbing thin films—779
Bethke, George W. Convenient calibration curve for prism infrared spectrometers—560(L)

Author Index to Volume 46

References with (A) are abstracts of papers presented at meetings of the Optical Society of America; (T) papers presented by title only; (L) indicates Letters to the Editor. It will be noted that there are no references to "see someone else" in the Author Index. Although it has meant a little duplication, there has been included under each author all articles in which he was author or co-author. All articles in which the author has participated are arranged in the chronological order of publication. A bibliography with author names arranged as in the original article is obtained by insertion of the author's name in the indicated (——) space under each indexed name. Although not strictly an authored article, we have included Book Reviews both under the book author as well as the reviewer (see also Book Reviews under the Subject Index).

Adams, Kenneth B.
—— **and Keivin Burns.** Vacuum interferometer and cadmium oven—36
Burns, Keivin and ——. Energy levels and wavelengths of natural cadmium and of cadmium-114—94
Adams, Richard M. and J. J. Katz. New variable thickness infrared cell and the infrared spectra of HF, DF, H_2O, and D_2O—895
Adelstein, S. James
Baker, Milton R., ——, and Bert L. Vallee. Physical basis of line enhancement in argon and krypton—138
Adler, Helmut E.
Herrick, Robert M., ——, John E. Coulson, and Gerald L. Howett. Detection of separations between adjacent signals on a simulated PPI radar scope—861
Allen, Eugene. Improved method of integrating curves obtained on a General Electric type recording spectrophotometer—430
Alpern, Mathew and John J. Faris. Luminance-duration relationship in the electric response of the human retina—845
Andrew, James F. Infrared response of pyrolyzed organic films—209
Anselone, P. M. and F. Sobel. Shielding of radiation from a plane circular source—934
Armington, John C. and William R. Biersdorf. Flicker and color adaptation in the human electroretinogram—393
Ashburn, Edward V. and Rodney G. Weldon. Spectral diffuse reflectance of desert surfaces—583
Averbach, Emanuel
Hake, Harold W. and ——. Spatial effects in foveal brightness discrimination—274

Badawy, Y. K. M.
Ishak, I. G. H., I. M. H. Hefzalla, and ——. Role of convergence in stereoscopic vision—303(L)
Baez, Albert V. Is resolving power independent of wavelength possible? An experiment with a sonic "macroscope"—901(L)
Baird, K. M.
—— **and K. H. Hart.** Excitation of mercury-198 in a liquid nitrogen cooled hollow cathode lamp—304(L)
—— Book review of *An Introduction to Interferometry* by S. Tolansky—908
Baker, Charles A., Anthony Debons, and Dominic F. Morris. Dark adaptation as a function of the intensity and distribution of light across the preadaptation field—401
Baker, H. Dean
Tea, Peter L., Jr., and ——. New detector unit for irradiance measurements, utilizing an integrating sphere and a photomultiplier tube—875
Baker, Milton R.
Vallee, Bert L. and ——. Anode temperatures and characteristics of the dc arc in noble gases—77
——, S. James Adelstein, and Bert L. Vallee. Physical basis of line enhancement in argon and krypton—138
Baldwin, M. W., Jr., and G. Nielsen, Jr. Subjective sharpness of simulated color television pictures—681
Ballard, Stanley S.
——, Edgar P. Slack, and Erich Hausmann. *Physics Principles* (Book). Reviewed by Harold P. Knauss—363
Barlow, H. B. Retinal noise and absolute threshold—634
Barnhart, Philip E., W. M. Protheroe, and James Galli. Direct observation of element motion in stellar shadow patterns—904(L)
Barr, William L. and F. A. Jenkins. Multilayer films for the ultraviolet—141(L)
Bartlett, Neil R.
Johnson, E. Parker and ——. Effect of stimulus duration on electrical responses of the human retina—167
Bass, Arnold M.
Kostkowski, Henry J. and ——. Slit function effects in the direct measurement of absorption line half-widths and intensities—1060
Bateman, J. B.
Mattuck, R. D., R. D. Petti, and ——. Stepped interference reflector for determining the optical constants of nonabsorbing unimolecular films. II. Experimental—782
Baumeister, Philip W. and John M. Stone. Broad-band multilayer film for Fabry-Perot interferometers—228(L)
Baxter, Lincoln, II, A. S. Makas, and W. A. Shurcliff. Measuring spectral properties of high-extinction polarizers—229(L)
—— On the properties of polarization elements as used in optical instruments. III. Angular aperture functions of a positive dichroic film polarizer—435
Beevers, R. B.
—— **and G. K. T. Conn.** Simple comparison reflectometer—996(L)
——, G. K. T. Conn, and J. Hampson. Simple monochromator for the infrared—997(L)
Bell, Ely E. and Leonard Eisner. Infrared radiation from the White Sands National Monument, New Mexico—303(L)
Bellamy, L. J. *The Infrared Spectra of Complex Molecules* (Book). Reviewed by J. M. Vandenbelt—909
Bennett, H. E.
Rank, D. H., J. M. Bennett, and ——. Measurement of interferometric secondary wavelength standards in the near infrared—477
Bennett, J. M.
Rank, D. H., ——, and H. E. Bennett. Measurement of interferometric secondary wavelength standards in the near infrared—477
Bennett, Robert B.
Ch'en, Shang-Yi, ——, and Oleg Jefimenko. Absorption bands of rubidium due to the presence of foreign gases—182
Berg, W. F. *Exposure* (second edition) (Book). Reviewed by Lloyd E. Varden—1001
Berning, Peter H. Note concerning multiple reflections within absorbing thin films—779
Bethke, George W. Convenient calibration curve for prism infrared spectrometers—560(L)

Biersdorf, William R.
Armington, John C. and ——. Flicker and color adaptation in the human electroretinogram—393
Billmeyer, Fred W., Jr. "Compensated opal" working standard equivalent to magnesium oxide—72(L)
Bitter, Francis and John F. Waymouth. Radiation temperature of a plasma—882
Blaisse, B. S. Polarized beam interferometer—380(A)/950
Boettner, Edward A.
Pearson, Carl A. and ——. Horizontal atmospheric transmittance measurements with a thallous sulfide cell transmissometer—54
Boll, R. H. and C. M. Sliepcevich. Evaluation of errors of optical origin arising in the size analysis of a dispersion by light transmission—200
Bouman, M. A.
Vos, J. J., A. Lazet, and ——. Visual contrast thresholds in practical problems—1065
Boynton, Robert M.
—— Rapid chromatic adaptation and the sensitivity functions of human color vision—172
—— **and William R. Bush.** Recognition of forms against a complex background—758
—— Book review of *Blur of the Retinal Image* by Glenn A. Fry—907
Brice, B. A. and Arthur Turner, Jr. Glass color standards for maple sirup—293
Brode, Wallace R.
—— Book review of *Thomas Young, Natural Philosopher, 1773–1829* by Alexander Wood and Frank Oldham—230
—— Book review of *Spectrochemical Abstracts, Vol. IV; 1946–1951* by E. H. S. von Someren and F. Lachman—363
—— Book review of *Mitteilungen aus den Forschungslaboratorien der Agfa Leverkusen-Muchen (Vol. 1)* edited by H. Frieser—560
—— Book review of *Ultraviolet and Visible Absorption Spectra (Index for 1930–1954)* by H. M. Hershenson—1002
Brodersen, Svend. Interferometric frequency calibration of infrared spectrometers—255
Broida, Herbert P.
Kostkowski, Henry J. and ——. Spectral absorption method for determining population "temperatures" in hot gases—246
Brown, W. R. J.
——, W. G. Howe, J. E. Jackson, and R. H. Morris. Multivariate normality of the color-matching process—46
Bryan, F. R.
Parsons, J. L., M. J. Irland, and ——. Continuous flow infrared gas analyzer employing interference filters—164
Buchdahl, H. A. Optical aberration coefficients. I. The coefficient of tertiary spherical aberration—941
Buchwald, E. *Fünf Kapitel Farbenlehre* (Book). Reviewed by Günter Wyszecki—1003
Burch, Darrell E.
Howard, J. N., ——, and Dudley Williams. Infrared transmission of synthetic atmospheres. I. Instrumentation—186
Howard, J. N., ——, and Dudley Williams. Infrared transmission of synthetic atmospheres. II. Absorption by carbon dioxide—237
Howard, J. N., ——, and Dudley Williams. Infrared transmission of synthetic atmospheres. III. Absorption by water vapor—242
Howard, J. N., ——, and Dudley Williams. Infrared transmission of synthetic atmospheres. IV. Application of theoretical band models—334
—— Infrared evidence for the presence of ozone in the lower atmosphere—360(L)
——, J. N. Howard, and Dudley Williams. Infrared transmission of synthetic atmospheres. V. Absorption laws for overlapping bands—452
Burke, Edward W., Jr., and J. E. Mack. Term $1s^2 2s 2p 3s\ ^4P^\circ$ in the first spectrum of boron—100
Burns, Keivin
Adams, Kenneth B. and ——. Vacuum interferometer and cadmium oven—36
—— **and Kenneth B. Adams.** Energy levels and wavelengths of natural cadmium and of cadmium-114—94
Bush, William R.
Boynton, Robert M. and ——. Recognition of forms against a complex background—758
Byham, C. L.
Gebhard, J. W., M. M. Duffy, G. H. Mowbray, and ——. Visual sensitivity to the rate of electrically produced intermittance—379(A)/851

Campbell, Charles J., Lawrence J. McEachern, and Elwin Marg. Aircraft flight by an optical periscope—944
Caplan, P. J.
Theissing, H. H. and ——. Measurement of the solar millimeter spectrum—971
Carpenter, Vance and Robert E. Hopkins. Comparison of three photoelectric methods of image evaluation—764, 1096(E)
Chabbal, R.
Jacquinot, P. and ——. Spectrophotometry by means of the Fabry-Perot interferometer—556(L)
Chasmar, R. P., W. H. Mitchell, and A. Rennie. Theory and performance of metal bolometers—469
Ch'en, Shang-Yi, Robert B. Bennett, and Oleg Jefimenko. Absorption bands of rubidium due to the presence of foreign gases—182
Chin, Newton B. and Richard E. Horn. Infrared skiascopic measurements of refractive changes in dim illumination and in darkness—60
Chubb, T. A. Transmission of barium fluoride crystal in the ultraviolet—362(L)
Chung, An-Min
Rosen, Saul and ——. Application of the least-squares method—223
Clark, Richard A.
LaBauve, Raphael J. and ——. Potentialities, for image evaluation, of geometric ray trace focal plots—677
Cloud, W. H. Zirconium arc source for infrared microspectrometer—899
Conn, G. K. T.
Beevers, R. B. and ——. Simple comparison reflectrometer—996(L)
Beevers, R. B., ——, and J. Hampson. Simple monochromator for the infrared—997(L)
Conway, John G. and Ralph D. McLaughlin. Isotope shift and wavelengths of the curium spectrum—91
Cornsweet, Tom N. Determination of the stimuli for involuntary drifts and saccadic eye movements—987
Coulson, John E.
Herrick, Robert M., Helmut E. Adler, ——, and Gerald L. Howett. Detection of separations between adjacent signals on a simulated PPI radar scope—861
Cragg, Brian and J. K. Hurwitz. Some effects of an air blast on spark discharge—889
Crittenden, Eugene Casson. Necrology—562
Crosswhite, H. M.
—— **and W. G. Fastie.** New spectrometer slit mechanism—110
Dieke, G. H., D. Dimock, and ——. Semiautomatic method for spectroscopic wavelength and intensity measurements—456
Dieke, G. H. and ——. Absorption spectrum and magnetic properties of ytterbium chloride—885

Cuff, Kermit F.
Harris, Louis and ——. Reflectance of goldblack deposits, and some other materials of low reflectance from 254 mμ to 1100 mμ. The scattering-unit-size in goldblack deposits —160

Dakin, R. K.
Forrest, J. W., H. W. Straat, and ——. Autocollimating spectrometer—143(L)
Dammers-de Klerk, A. and F. J. Spruit. Measurement of low fluorescence intensities—556(L)
Davidson, Hugh R. and Henry Hemmendinger. Color space based on color difference perception—383(A)
Davis, William C. Limitations of various fast-shuttering cameras—375(A)
Dearth, Leonard R.
Van den Akker, J. A., ——, and Wayne M. Shillcox. Evaluation of absolute reflectance for standardization purposes—378(A)
Debons, Anthony
—— **and Yun Hsia.** Visual acuity and light adaptation—374(A)
Baker, Charles A., ——, and Dominic F. Morris. Dark adaptation as a function of the intensity and distribution of light across the preadaptation field—401
Deirmendjian, Diran and Zdenek Sekera. Atmospheric turbidity and the transmission of ultraviolet sunlight —565
Dieke, G. H.
——, **D. Dimock, and H. M. Crosswhite.** Semiautomatic method for spectroscopic wavelength and intensity measurements—456
——, **and Shobha Singh.** Absorption, fluorescence, and energy levels of the dysprosium ion—495
—— **and H. M. Crosswhite.** Absorption spectrum and magnetic properties of ytterbium chloride—885
di Francia, G. Toraldo. On resolving power and information —72(L)
Dimitroff, James M. and David W. Swanson. Improved technique for coating integrating spheres with magnesium oxide—555(L)
Dimmick, Forrest L. Specifications and calibration of the 1953 Edition of the Inter-Society Color Council Color Aptitude Test—389
Dimock, D.
Dieke, G. H., ——, and H. M. Crosswhite. Semiautomatic method for spectroscopic wavelength and intensity measurements—456
Djurle, Erik
Ingelstam, Erik, ——, and Bo Sjögren. Contrast-transmission functions determined experimentally for asymmetrical images and for the combination of lens and photographic emulsion—707
Dreyfus, Marc G. Measurement of birefringence—142(L)
Drickamer, H. G.
Parsons, R. W. and ——. Sodium chloride and calcium fluoride windows for high-pressure infrared spectroscopy —464(L)
Duffy, M. M.
Gebhard, J. W., ——, G. H. Mowbray, and C. L. Byham. Visual sensitivity to the rate of electrically produced intermittence—379(A)/851
Duke, J.
Vollmer, J., ——, and C. Wysocki. High-speed radiation pyrometer—215
Dunn, R. B. and E. R. Manring. Recording night sky photometer of high spectral purity—572
Dusek, E. Ralph
Teichner, Warren H., John L. Kobrick, and ——. Effects of target separation and distance on commonplace binocular depth discrimination—122
Dutta, A. K. and U. Gantayet. Excitation mechanism of arc spectra lines from a study of cadmium arc spectra—1046

Ehrlich, Margarete
—— **and William L. McLaughlin.** Reciprocity law for x-rays. Part I: validity for high-intensity exposures in the negative region—797
—— Reciprocity law for x-rays. Part II: failure in the reversal region—801
Eisner, Leonard
Bell, Ely E. and ——. Infrared radiation from the white sands at White Sands National Monument, New Mexico —303(L)
Ellis, Joseph W.
Shields, John H. and ——. Dispersion of birefringence of quartz in the near infrared—263
El-Sum, Hussein M. A.
Kirkpatrick, Paul and ——. Image formation by reconstructed wave fronts. I. Physical principles and methods of refinement—825

Faris, John J.
Alpern, Mathew and ——. Luminance-duration relationship in the electric response of the human retina—845
Fastie, William G.
Crosswhite, H. M. and ——. New spectrometer slit mechanism—110
—— Surface bloom on evaporated aluminum—905(L)
Feibelman, W. A. Calculator for thin film measurements —994
Ferguson, W. F. C. Book review of *Microstructures of Diamond Surfaces* by S. Tolansky—305
Forrest, J. W.
—— **H. W. Straat, and R. K. Dakin.** Autocollimating spectrometer—143(L)
—— **and H. W. Straat.** Refractometer for glass contol—488
—— Shielding errors in critical angle refractometry—657
Forrester, A. Theodore, Richard A. Gundmundsen, and Philip O. Johnson. High efficiency microwave excitation of light sources—339
Friedman, Joseph S. Necrology—770
Frieser, H., Editor. *Mitteilungen aus den Forschungslaboratorien der Agfa Leverkusen-Muchen (Vol. 1)* (Book). Reviewed by Wallace R. Brode—560
Fry, Glenn A. *Blur of the Retinal Image* (Book). Reviewed by Robert M. Boynton—907

Galli, James
Barnhart, Philip E., W. M. Protheroe, and ——. Direct observation of element motion in stellar shadow patterns —904(L)
Gantayet, U.
Dutta, A. K. and ——. Excitation mechanism of arc spectra lines from a study of cadmium arc spectra—1046
Gebhard, J. W.
——, **M. M. Duffy, G. H. Mowbray, and C. L. Byham.** Visual sensitivity to the rate of electrically produced intermittence—379(A)/851
Gibson, Gilbert L. Transistor operated null indicator for use with the multipurpose reflectometer—144(L)
Glaser, Walter. Book review of *Static and Dynamic Electron Optics* by P. A. Sturrock—229
Goerlich, Paul. *Die Anwendung Der Photozellen* (Book). Reviewed by Paul H. Keck—73
Golay, Marcel J. E. Comparison of various infrared spectrometric systems—422
Goyan, Frank M.
Strait, Louis A., ——, and W. D. Kumler. Semisolid nickel sulfate filter—1038

Graham, Irven C.
McKeehan, Charles W. and ——. Special cuvettes for spectrophotometric measurements of micro-organisms and living tissues—141(L)
Greenler, Robert G. Reflection image reducer—433
Grimson, Samuel B. Necrology—467
Gudmundsen, Richard A.
Forrester, A. Theodore, ——, and Philip O. Johnson. High efficiency microwave excitation of light sources—339
Guenther, A. H.
Rank, D. H., T. A. Wiggins, ——, and J. N. Shearer. Changes of rotational constants in some Π—Σ bands of HCN and N_2O—953

Hake, Harold W. and Emanuel Averbach. Spatial effects in foveal brightness discrimination—274
Hall, Joseph F., Jr.
—— Extension of the approximate equations for the optical analysis of thin films—142(L)
—— Optical properties of zinc sulfide and cadmium sulfide in the ultraviolet—1013
Hampson, J.
Beevers, R. B., G. K. T. Conn, and ——. Simple monochromator for the infrared—997(L)
Hariharan, P. Resolving power of photographic emulsions—315
Harker, George S.
—— **and Lelon A. Weaver, Jr.** Relative precision of range information obtainable with fixed ballistic and wandermark stereoscopic reticles—195
—— **and Arnold C. Henderson.** Effect of vertical misalignment of optical images on depth judgments—841
Harris, Louis and Kermit F. Cuff. Reflectance of goldblack deposits, and some other materials of low reflectance from 254 mμ to 1100 mμ. The scattering-unit-size in goldblack deposits—160
Hart, K. H.
Baird, K. M. and ——. Excitation of mercury-198 in a liquid nitrogen cooled hollow cathode lamp—304(L)
Hartree, D. R. Approximate wave functions for some atoms of the first long period—350
Hass, Georg
——, **H. H. Schroeder, and A. F. Turner.** Mirror coatings for low visible and high infrared reflectance—31
——, **W. R. Hunter, and R. Tousey.** Reflectance of evaporated aluminum in the vacuum ultraviolet—369(A)/1009
Hatcher, Robert D. and John H. Rohrbaugh. Theory of the echelette grating. I—104
Hausmann, Erich
Ballard, Stanley S., Edgar P. Slack, and ——. *Physics Principles* (Book). Reviewed by Harold P. Knauss—363
Heath, Gordon G.
Walls, Gordon L. and ——. Neutral points in 138 protanopes and deuteranopes—640
Hefzalla, I. M. H.
Ishak, I. G. H., ——, and Y. K. M. Badawy. Role of convergence in stereoscopic vision—303(L)
Henderson, Arnold C.
Harker, George S. and ——. Effect of vertical misalignment of optical images on depth judgments—841
Herrick, Robert M., Helmut E. Adler, John E. Coulson, and Gerald L. Howett. Detection of separations between adjacent signals on a simulated PPI radar scope—861
Hershenson, H. M. *Ultraviolet and Visible Absorption Spectra (Index for 1930–1954)* (Book). Reviewed by Wallace R. Brode—1002
Herzberger, Max
—— Intrinsic image-error theory—132
—— Book review of *Grundlagen der geometrisch-optischen Abbildung* by Johannes Picht—1094
Higgins, G. C., R. N. Wolfe, and R. L. Lamberts. Relationship between definition and resolving power with test objects differing in contrast—752
Hill, Armin J. Effect of certain features of photo-optical transmission systems on characteristics related to picture quality in projected motion pictures—691
Holland, L. and E. W. van Dam. Wear resistance of magnesium fluoride films on glass—773
Holland, Thomas E. Deformation of rotating mirrors resulting from centrifugal force—1090(L)
Hopkins, Robert E.
—— Book review of *Recent Advances in Optics* by E. H. Linfoot—230
Carpenter, Vance and ——. Comparison of three photoelectric methods of image evaluation—764, 1096(E)
Hopkinson, R. G.
—— **and P. Petherbridge.** Sky luminance measurements—555(L)
—— Glare discomfort and pupil diameter—649
Horn, Richard E.
Chin, Newton B. and ——. Infrared skiascopic measurements of refractive changes in dim illumination and in darkness—60
Howard, John N.
——, **D. E. Burch, and Dudley Williams.** Infrared transmission of synthetic atmospheres. I. Instrumentation—186
——, **D. E. Burch, and Dudley Williams.** Infrared transmission of synthetic atmospheres. II. Absorption by carbon dioxide—237
——, **D. E. Burch, and Dudley Williams.** Infrared transmission of synthetic atmospheres. III. Absorption by water vapor—242
——, **D. E. Burch, and Dudley Williams.** Infrared transmission of synthetic atmospheres. IV. Application of theoretical band models—334
Burch, D. E., ——, and Dudley Williams. Infrared transmission of synthetic atmospheres. V. Absorption laws for overlapping bands—452
White, John U. and ——. Widths of infrared absorption bands in liquids and solids—662(L)
Howe, W. G.
Brown, W. R. J., ——, J. E. Jackson, and R. H. Morris. Multivariate normality of the color-matching process—46
Howett, Gerald L.
Herrick, Robert M., Helmut E. Adler, John E. Coulson, and ——. Detection of separations between adjacent signals on a simulated PPI radar scope—861
Hughes, D. S. and W. W. Robertson. Apparatus for obtaining optical absorption spectra at pressures to 6000 bars—557(L)
Hulburt, E. O. Some recent papers in the *Journal of the Optical Society of America*—5
Humphreys, Curtis J. and E. Paul, Jr. Newly observed lines in He I—999(L)
Hunt, D. J. and G. Pish. Isotopic analysis of polonium-208–209 mixtures—87; errata—462
Hunten, D. M. Automatic auroral recorder—578
Hunter, W. R.
Hass, G., ——, and R. Tousey. Reflectance of evaporated aluminum in the vacuum ultraviolet—369(A)/1009
Hurvich, Leo M.
Jameson, Dorothea and ——. Some quantitative aspects of an opponent-colors theory. III. Changes in brightness, saturation, and hue with chromatic adaptation—405
—— **and Dorothea Jameson.** Some quantitative aspects of an opponent-colors theory. IV. A psychological color specification system—416
Jameson, Dorothea and ——. Theoretical analysis of anomalous trichromatic color vision—1075

Hurwitz, J. K.
Cragg, Brian and ——. Some effects of an air blast on spark discharge—889

Iglesias, Laura. Singlets in the Mn II spectrum—449
Ingelstam, Erik
Erik Djurle, and Bo Sjögren. Contrast-transmission functions determined experimentally for asymmetrical images and for the combination of lens and photographic emulsion—707
Ingersoll, L. R. and D. H. Liebenberg. Faraday effect in gases and vapors. II—538
Irland, M. J.
Parsons, J. L., ——, and F. R. Bryan. Continuous flow infrared gas analyzer employing interference filters—164
Ishak, I. G. H., I. M. H. Hefzalla, and Y. K. M. Badawy. Role of convergence in stereoscopic vision—303(L)
Ivanoff, Alexandre
—— Degree of polarization of submarine illumination—362(L)
—— About the spherical aberration of the eye—901(L)

Jackson, J. E.
Brown, W. R. J., W. G. Howe, ——, and R. H. Morris. Multivariate normality of the color-matching process—46
Jacquez, John A. and Hans F. Kuppenheim. Effect of elimination of the specular component on efficiency and error of the integrating sphere—428
Jacquinot, P. and R. Chabbal. Spectrophotometry by means of the Fabry-Perot interferometer—556(L)
Jameson, Dorothea
—— **and Leo M. Hurvich.** Some quantitative aspects of an opponent-colors theory. III. Changes in brightness, saturation, and hue with chromatic adaptation—405
Hurvich, Leo M. and ——. Some quantitative aspects of an opponent-colors theory. IV. A psychological color specification system—416
—— **and Leo M. Hurvich.** Theoretical analysis of anomalous trichromatic color vision—1075
Jatar, D. P. and H. D. Sharma. Change in light output associated with a current change of irradiation under low-frequency discharges in air—1092(L)
Jefimenko, Oleg
Ch'en, Shang-Yi, Robert B. Bennett, and ——. Absorption bands of rubidium due to the presence of foreign gases—182
Jenkins, F. A.
Barr, William L. and ——. Multilayer films for the ultraviolet—141(L)
—— Book review of *Optics and Sound* [Intermediate Science Series] published by the Pitman Publishing Corporation—363
Jenness, James R., Jr. Reflection-reducing coatings of magnesium fluoride and lithium fluoride in the near infrared—157
Jerrard, H. G. Determination of extinction directions in a doubly-refracting medium of small phase difference: application to flow birefringence studies—259
Johannsen, Dorothea E.
——, Patricia I. McBride, and Joseph W. Wulfeck. Studies on dark adaptation. I. The pre-exposure tolerance of the dark-adapted fovea—67
——, Patricia I. McBride, and Joseph W. Wulfeck. Studies on dark adaptation. II. The pre-exposure tolerance of the human fovea adapted to different brightness levels—266
Johnson, Donald J.
Olsen, Allen L., ——, and Raymond H. Pierson. Auxiliary recording system for the Perkin-Elmer Model 21 Spectrophotometer—354
Johnson, E. Parker and Neil R. Bartlett. Effect of stimulus duration on electrical responses of the human retina—167
Johnson, Francis S. Spectral radiance of the carbon arc from 1900 to 2500 angstroms—101
Johnson, Philip O.
Forrester, A. Theodore, Richard A. Gudmundsen, and ——. High efficiency microwave excitation of light sources—339
Jones, R. Clark
—— New calculus for the treatment of optical systems. VIII. Electromagnetic theory—126
—— Transmittance of a train of three polarizers—528
Judd, Deane B. and Günter Wyszecki. Extension of the Munsell renotation system to very dark colors—281

Kapany, N. S. and J. N. Pike. Scanning integrator for producing sinusoidal test objects—867
Katz, J. J.
Adams, Richard M. ——. New variable thickness infrared cell and the infrared spectra of HF, DF, H_2O, and D_2O—895
Kazamaki, T. and F. Kondo. New series of distortionless telephoto lenses—22
Keck, Paul H. Book review of *Die Anwendung Der Photozellen* by Paul Goerlich—73
Keitz, H. A. E. *Light Calculations and Measurements* (Book). Reviewed by Ray P. Teele—73
Kelly, J. C.
Thornton, B. S. and ——. Multiple-beam interferometric method of studying small vibrations—191
Kessler, K. G., S. B. Prusch, and I. A. Stegun. Analysis of atomic spectra with electronic digital computers—1043
King, Frank T. and E. R. Lippincott. Sodium vapor lamp Raman excitation source for the study of colored compounds—661(L)
Kinney, Jo Ann Smith. Calculated effect of the color temperature of the stimulus on scotopic thresholds—1093(L)
Kirkpatrick, Paul and Hussein M. A. El-Sum. Image formation by reconstructed wave fronts. I. Physical principles and methods of refinement—825
Knauss, Harold P. Book review of *Physics Principles* by Stanley S. Ballard, Edgar P. Slack, and Erich Hausmann—363
Knox, Robert S. Direct-reading Planck distribution slide rule—879
Kobrick, John L.
Teichner, Warren H., ——, and E. Ralph Dusek. Effects of target separation and distance on commonplace binocular depth discrimination—122
Teichner, Warren H. and ——. Effects of viewing distance with the Howard-Dolman apparatus—837
Koch, Donald A.
Stultz, Keith F. and ——. Role of chromaticity difference in color graininess judgments—832
Kondo, F.
Kazamaki, T. and ——. New series of distortionless telephoto lenses—22
Koomen, M. J., R. Scolnik, and R. Tousey. Spherical aberration of the eye and the choice of axis—903(L)
Kostkowski, Henry J. and Herbert P. Broida. Spectral absorption method for determining population "temperatures" in hot gases—246
—— **and Arnold M. Bass.** Slit function effects in the direct measurement of absorption line half-widths and intensities—1060
Kumler, W. D.
Strait, Louis A., Frank M. Goyan, and ——. Semisolid nickel sulfate filter—1038
Kuppenheim, Hans F.
Jacquez, John A. and ——. Effect of elimination of the specular component on efficiency and error of the integrating sphere—428

LaBauve, Raphael J. and Richard A. Clark. Potentialities, for image evaluation, of geometric ray trace focal plots—677
Lachman, F.
van Someren, E. H. S. and ——. *Spectrochemical Abstracts, Vol. IV; 1946-1951* (Book). Reviewed by Wallace R. Brode—363
LaMarre, D.
Osterberg, H. and ——. Modified method of Fizeau fringes for thickness measurements—777
Lamberts, R. L.
Higgins, G. C., R. N. Wolfe, and ——. Relationship between definition and resolving power with test objects differing in contrast—752
Lazet, A.
Vos, J. J., ——, and M. A. Bouman. Visual contrast thresholds in practical problems—1065
Leibowitz, H. and L. Walker. Effect of field size and luminance on the binocular summation of suprathreshold stimuli—171
Leistner, Karl. Experiments concerning the interrelationship of resolving power and recognition—686
Lempicki, A. Potential distribution and localized photoeffects in zinc sulfide single crystals—611
Liebenberg, D. H.
Ingersoll, L. R. and ——. Faraday effect in gases and vapors. II—538
Linfoot, E. H.
—— Resolving power and information—72(L)
—— *Recent Advances in Optics* (Book). Reviewed by Robert E. Hopkins—230
—— Transmission factors and optical design—740
Lippincott, E. R.
King, Frank T. and ——. Sodium vapor lamp Raman excitation source for the study of colored compounds—661(L)
Loebner, E. E. Luminous and radiant power gains of light-amplifying devices—227(L)
Lucy, F. A. Image quality criteria derived from skew traces—699

McAlister, E. D., J. J. Villa, and C. D. Salzberg. Rapid and accurate measurements of refractive index in the infrared—485
McBride, Patricia I.
Johannsen, Dorothea E., ——, and Joseph W. Wulfeck. Studies on dark adaptation. I. The pre-exposure tolerance of the dark-adapted fovea—67
Johannsen, Dorothea E., ——, and Joseph W. Wulfeck. Studies on dark adaptation. II. The pre-exposure tolerance of the human fovea adapted to different brightness levels—266
McEachern, Lawrence J.
Campbell, Charles J., ——, and Elwin Marg. Aircraft flight by an optical periscope—944
McKeehan, Charles W. and Irven C. Graham. Special cuvettes for spectrophotometric measurements of microorganisms and living tissues—141(L)
McLaughlin, Ralph D.
Conway, John G. and ——. Isotope shift and wavelengths of the curium spectrum—91
McLaughlin, William L.
Ehrlich, Margarete and ——. Reciprocity law for x-rays. Part I: validity for high-intensity exposures in the negative region—797
McNally, J. Rand, Jr.
Vander Sluis, K. L. and ——. Fabry-Perot interferometer with finite apertures—39
—— Book review of *The Microphysical World* by William Wilson—74

MacAdam, David L.
—— Chromatic adaptation—500
—— Book review of *Le Mécanisme de la Vision des Couleurs* by J. Ségal—1002
Macdonald, Duncan E. and John T. Watson. Detection and recognition of photographic detail. I. Empirical data applicable to the prediction of performance of diffraction limited systems—715
Mack, J. E.
Burke, Edward W., Jr., and ——. Term $1s^2 2s 2p 3s\ {}^4P^\circ$ in the first spectrum of boron—100
Mahan, A. I. Reflection and refraction at oblique incidence on a dielectric-metallic interface as a boundary value problem in electromagnetic theory—371(A)/913
Makas, A. S.
Baxter, L., II, ——, and W. A. Shurcliff. Measuring spectral properties of high-extinction polarizers—229(L)
Malitson, Irving H.
Rodney, William S. and ——. Refraction and dispersion of thallium bromide-iodide—378(A)/956
Manring, E. R.
Dunn, R. B. and ——. Recording night sky photometer of high spectral purity—572
Mara, R. T. and G. B. B. M. Sutherland. Crystal structure of brucite and portlandite in relation to infrared absorption—464(L)
Marg, Elwin
Campbell, Charles J., Lawrence J. McEachern, and ——. Aircraft flight by an optical periscope—944
Marković, Branimir. Influence of light source size on interference—979
Marple, D. T. F. Spectral emissivity of rhenium—490, 1096(E)
Marriage, A. and E. Pitts. Relation between granularity and autocorrelation—1019
Marriott, F. H. C. Frequency-of-seeing curves and spontaneous excitation—661(L)
Martin, L. C. *Geometrical Optics* (Book). Reviewed by F. E. Washer—663
Mattuck, Richard D.
—— Recent attempts to determine the thickness and refractive index of unimolecular films—615
—— Stepped interference reflector for determining the optical constants of nonabsorbing unimolecular films. I. Theory—621
——, **R. D. Petti, and J. B. Bateman.** Stepped interference reflector for determining the optical constants of nonabsorbing unimolecular films. II. Experimental—782
Meiron, Joseph
—— On the design of optical systems containing aspheric surfaces—288
—— Design of an *F*/2 double aspheric curved field lens—1091(L)
Meissner, K. W.
VanVeld, Robert D. and ——. Interferometric wavelength measurements of germanium lines of a hollow cathode discharge—598
Mellichamp, J. W. Simple device to control the atmosphere for arc spectroscopy—359(L)
Menzel, Donald H. Book review of *The Moon* by H. P. Wilkins and Patrick Moore—363
Mertens, J. J. Influence of knowledge of target location upon the probability of observation of peripherally observable test flashes—1069
Mertz, Lawrence. Optical Fourier synthesizer—548
Meyer-Arendt, Jurgen R. Testing of glass surfaces by an incident light Schlieren method—1090(L)
Miller, Gerald J.
Peskin, James C. and ——. Bleaching of visual purple—1048

Mitchell, W. H.
Chasmar, R. P., ——, and A. Rennie. Theory and performance of metal bolometers—469
Mohler, Orren C. *A Table of Solar Spectrum Wave Lengths, 11984 A to 25578 A* (Book). Reviewed by Charlotte E. Moore—909
Moore, Charlotte E. Book review of *A Table of Solar Spectrum Wave Lengths, 11984 A to 25578 A* by Orren C. Mohler—909
Moore, Patrick
Wilkins, H. P. and ——. *The Moon* (Book). Reviewed by Donald H. Menzel—363
Morris, Dominic F.
Baker, Charles A., Anthony Debons, and ——. Dark adaptation as a function of the intensity and distribution of light across the preadaptation field—401
Morris, R. H.
Brown, W. R. J., W. G. Howe, J. E. Jackson, and ——. Multivariate normality of the color-matching process—46
Moser, F.
Nail, N. R., ——, and F. Urbach. Incremental photometer and optical measurements in the photographic latent-image range—218
Mowbray, G. H.
Gebhard, J. W., M. M. Duffy, ——, and C. L. Byham. Visual sensitivity to the rate of electrically produced intermittence—379(A)/851
Mrozowski, S. Multipole lines in the first spectrum of polonium I—663(L)
Murcott, N. Influence of primary coma and astigmatism upon the low-contrast photographic resolving power of a camera lens—552
Murray, Allen E. Effect of antireflection films on color in optical instruments—790, 1096(E)
Murty, M. V. R. K. Laminated lens—998(L)

Nail, N. R., F. Moser, and F. Urbach. Incremental photometer and optical measurements in the photographic latent-image range—218
Nelson, C. N. and J. L. Simonds. Simple methods for approximating the fractional gradient speeds of photographic materials—324
Nelson, L. S. Sapphire lamp for short wavelength photochemistry—768(L)
Nelson, R. C.
—— Photoconductivity of some cyanine dyes—10
—— Sensitization of photoconductivity in cadmium sulfide—13
—— Contact potential difference between sensitizing dye and substrate—1016
Neugebauer, H. E. J. Quality factor for filters whose spectral transmittances are different from color mixture curves, and its application to color photography—381(A)/821
Newkirk, Gordon A., Jr. Photometry of the solar aureole—1028
Nielsen, G., Jr.
Baldwin, M. M., Jr., and ——. Subjective sharpness of simulated color television pictures—681

O'Brien, Philip F. Network representation of the integrating sphere—343
Ogle, Kenneth N.
—— Stereoscopic acuity and the role of convergence—269
—— Role of convergence in stereoscopic vision—303(L)
O'Keefe, John Aloysius. Resolving power of visible light—359(L)
Oldenberg, O. Conclusions from the characteristic curves of photographic plates, minimum effect of grain—300
Oldham, Frank
Wood, Alexander and ——. *Thomas Young, Natural Philosopher, 1773–1829* (Book). Reviewed by Wallace R. Brode—230
Olsen, Allen L., Donald J. Johnson, and Raymond H. Pierson. Auxiliary recording system for the Perkin-Elmer Model 21 Spectrophotometer—354
O'Neill, Edward L. Transfer function for an annular aperture—285, 1096(E)
Oppenheim, Uri. Semireflecting silver films for infrared interferometry—628
Osterberg, Harold and D. LaMarre. Modified method of Fizeau fringes for thickness measurements—777

Palmer, C. Harvey, Jr. Diffraction grating anomalies. II. Coarse gratings—50
Parsons, J. L., M. J. Irland, and F. R. Bryan. Continuous flow infrared gas analyzer employing interference filters—164
Parsons, R. W. and H. G. Drickamer. Sodium chloride and calcium fluoride windows for high-pressure infrared spectroscopy—464(L)
Paul, Edward, Jr.
Humphreys, C. J. and ——. Newly observed lines in He I—999(L)
Pearson, Carl A. and Edward A. Boettner. Horizontal atmospheric transmittance measurements with a thallous sulfide cell transmissometer—54
Penndorf, Rudolf
—— Colors of natural objects—180
—— Total Mie scattering coefficients for spherical particles of refractive index 2.00—1001(L)
Peskin, James C. and Gerald J. Miller. Bleaching of visual purple—1048
Petherbridge, P.
Hopkinson, R. G. and ——. Sky luminance measurements—555(L)
Petti, R. D.
Mattuck, R. D., ——, and J. B. Bateman. Stepped interference reflector for determining the optical constants of nonabsorbing unimolecular films. II. Experimental—782
Picht, Johannes
—— *Mess- und Prüfmethoden der Optischen Fertigung Band 1.2. erweiterte Auflage* (Book). Reviewed by Max Reiss—1002
—— *Grundlagen der geometrisch-optischen Abbildung* (Book). Reviewed by Max Herzberger—1094
Pierson, Raymond H.
Olsen, Allen L., Donald J. Johnson, and ——. Auxiliary recording system for the Perkin-Elmer Model 21 Spectrophotometer—354
Pike, J. N.
Kapany, N. S. and ——. Scanning integrator for producing sinusoidal test objects—867
Pish, G.
Hunt, D. J. and ——. Isotopic analysis of polonium-208–209 mixtures—87; errata—462
Pitman Publishing Corporation. *Optics and Sound* [Intermediate Science Series] (Book). Reviewed by F. A. Jenkins—363
Pitts, E.
Marriage, A. and ——. Relation between granularity and autocorrelation—1019
Platt, John R. Wavelength dependence of radiation-noise limits on sensitivity of infrared photodetectors—609
Polinsky, Don M. and Francis A. Young. Effect of hue durations on adaptation to darkness—118
Protheroe, W. M.
Barnhart, Philip E., ——, and James Galli. Direct observation of element motion in stellar shadow patterns—904(L)

Prusch, S. B.
Kessler, K. G., ——, and I. A. Stegun. Analysis of atomic spectra with electronic digital computers—1043

Rank, D. H.
—— and J. N. Shearer. Linear gas mass flow device with applications to interferometry—463(L)
——, J. M. Bennett, and H. E. Bennett. Measurement of interferometric secondary wavelength standards in the near infrared—477
——, T. A. Wiggins, A. H. Guenther, and J. N. Shearer. Changes of rotational constants in some $^2\Pi$-$^2\Sigma$ bands of HCN and N_2O—953
Reiche, Fritz. Total absorption and overlapping effect due to two spectral lines of equal width and strength—590
Reiss, Max. Book review of *Mess- und Prüfmethoden der Optischen Fertigung Band 1. 2. erweiterte Auflage* by Johannes Picht—1002
Rekers, R. G. and D. S. Villars. Flame zone spectroscopy of solid propellants. II. Double base propellant JPN—534
Rennie, A.
Chasmar, R. P., W. H. Mitchell, and ——. Theory and performance of metal bolometers—469
Richards, Paul I. Scattering from a point source in plane clouds—927
Robertson, W. W.
Hughes, D. S. and ——. Apparatus for obtaining optical absorption spectra at pressures to 6000 bars—557(L)
Rodney, William S. and Irving H. Malitson. Refraction and dispersion of thallium bromide-iodide—378(A)/956
Rohrbaugh, John H.
Hatcher, Robert D. and ——. Theory of the echelette grating. I—104
Rosen, Saul and An-Min Chung. Application of the least-squares method—223
Rothschild, S. Large-screen, high-current photoconductive cells using zinc sulfide cadmium sulfide, or cadmium sulfide, or cadmium selenide phosphors—662(L)

Salzberg, C. D.
McAlister, E. D., J. J. Villa, and ——. Rapid and accurate measurements of refractive index in the infrared—485
Schade, Otto H., Sr. Optical and photoelectric analog of the eye—721
Schroeder, H. H.
Hass, Georg, ——, and A. F. Turner. Mirror coatings for low visible and high infrared reflectance—31
Scolnik, R.
Koomen, M. J., ——, and R. Tousey. Spherical aberration of the eye and the choice of axis—903(L)
Ségal, J. *Le Mécanisme de la Vision des Couleurs* (Book). Reviewed by David L. MacAdam—1002
Sekera, Zdenek
Deirmendjian, Diran and ——. Atmospheric turbidity and the transmission of ultraviolet sunlight—565
Shack, Roland V. Outline of practical characteristics of an image-forming system—755
Sharma, H. D.
Jatar, D. P. and ——. Change in light output associated with a current change of irradiation under low-frequency discharges in air—1092(L)
Shaw, John H.
Sloan, Raymond, ——, and Dudley Williams. Thermal radiation from the atmosphere—543
Shearer, J. N.
Rank, D. H. and ——. Linear gas mass flow device with applications to interferometry—463(L)
Rank, D. H., T. A. Wiggins, A. H. Guenther, and ——. Changes of rotational constants in some $^2\Pi$-$^2\Sigma$ bands of HCN and N_2O—953
Shields, John H. and Joseph W. Ellis. Dispersion of birefringence of quartz in the near infrared—263
Shipley, Thorne and Gordon L. Walker. Chromatic significance of spectrophotometric errors—1052
Shurcliff, W. A.
Baxter, L., II, A. S. Makas, and ——. Measuring spectral properties of high-extinction polarizers—229(L)
Simonds, J. L.
Nelson, C. N. and ——. Simple methods for approximating the fractional gradient speeds of photographic materials—324
Singh, Shobha
Dieke, G. H. and ——. Absorption, fluorescence, and energy levels of the dysprosium ion—495
Sjögren, Bo
Ingelstam, Erik, Erik Djurle, and ——. Contrast-transmission functions determined experimentally for asymmetrical images and for the combination of lens and photographic emulsion—707
Slack, Edgar P.
Ballard, Stanley S., ——, and Erich Hausmann. *Physics Principles* (Book). Reviewed by Harold P. Knauss—363
Sliepcevich, C. M.
Boll, R. H. and ——. Evaluation of errors of optical origin arising in the size analysis of a dispersion by light transmission—200
Sloan, Raymond, John H. Shaw, and Dudley Williams. Thermal radiation from the atmosphere—543
Sobel, F.
Anselone, P. M. and ——. Shielding of radiation from a plane circular source—934
Spruit, F. J.
Dammers-de Klerk, A. and ——. Measurement of low fluorescence intensities—556(L)
Stegun, I. A.
Kessler, K. G., S. B. Prusch, and ——. Analysis of atomic spectra with electronic digital computers—1043
Stock, Jurgen. Remarks on the critical time period and the Schwarzschild exponent in photographic processes—17
Stone, John M.
Baumeister, Philip W. and ——. Broad-band multilayer film for Fabry-Perot interferometers—228(L)
Straat, H. W.
Forrest, J. W., ——, and R. K. Dakin. Autocollimating spectrometer—143(L)
Forrest, J. W. and ——. Refractometer for glass control—488
Strait, Louis A., Frank M. Goyan, and W. D. Kumler. Semi-solid nickel sulfate filter—1038
Stultz, Keith F. and Donald A. Koch. Role of chromaticity difference in color graininess judgments—832
Sturrock, P. A. *Static and Dynamic Electron Optics* (Book). Reviewed by Walter Glaser—229
Sutherland, G. B. B. M.
Mara, R. T. and ——. Crystal structure of brucite and portlandite in relation to infrared absorption—464(L)
Swanson, David W.
Dimitroff, James M. and ——. Improved technique for coating integrating spheres with magnesium oxide—555(L)

Täcklind, Sven
Vogl, George and ——. Spectacle tester—361(L)
Tanzman, Irving J.
Westheimer, Gerald and ——. Qualitative depth localization with diplopic images—116
Taylor, J. H. and H. W. Yates. Infrared evidence for atmospheric ozone at sea level—998(L)
Taylor, Joseph. Necrology—910

Tea, Peter L. Jr., and H. Dean Baker. New detector unit for irradiance measurements, utilizing an integrating sphere and a photomultiplier tube—875
Teele, Ray P. Book review of *Light Calculations and Measurements* by H. A. E. Keitz—73
Teichner, Warren H.
——, **John L. Kobrick, and E. Ralph Dusek.** Effects of target separation and distance on commonplace binocular depth discrimination—122
—— **and John L. Kobrick.** Effects of viewing distance with the Howard-Dolman apparatus—837
Theissing, H. H. and P. J. Caplan. Measurement of the solar millimeter spectrum—971
Thiers, Ralph E.
Vallee, Bert L. and ——. Effect of alkali and alkaline earth chlorides on the anode temperature of the dc arc—83
Thornton, B. S. and J. C. Kelly. Multiple-beam interferometric method of studying small vibrations—191
Thurnau, Donald H. Quantum efficiency measurements on several phosphors under excitation in the extreme ultraviolet—346
Tolansky, S.
—— *Microstructures of Diamond Surfaces* (Book). Reviewed by W. F. C. Ferguson—305
—— *An Introduction to Interferometry* (Book). Reviewed by K. M. Baird—908
Tousey, Richard
Hass, G., W. R. Hunter, and ——. Reflectance of evaporated aluminum in the vacuum ultraviolet—369(A)/1009
Koomen, M. J., R. Scolnik, and ——. Spherical aberration of the eye and the choice of axis—903(L)
Traub, Alan C. Two-color monitoring method for reproducing thin film thicknesses—999(L)
Turner, A. F.
Hass, Georg, H. H. Schroeder, and ——. Mirror coatings for low visible and high infrared reflectance—31
Turner, Arthur, Jr.
Brice, B. A. and ——. Glass color standards for maple sirup—293
Tutihasi, Simpei. Quenching of photoconductivity in cadmium sulfide—443

Urbach, F.
Nail, N. R., F. Moser, and ——. Incremental photometer and optical measurements in the photographic latent-image range—218

Vallee, Bert L.
—— **and Milton R. Baker.** Anode temperatures and characteristics of the dc arc in noble gases—77
—— **and Ralph E. Thiers.** Effect of alkali and alkaline earth chlorides on the anode temperature of the dc arc—83
Baker, Milton R., S. James Adelstein, and ——. Physical basis of line enhancement in argon and krypton—138
van Dam, E. W.
Holland, L. and ——. Wear resistance of magnesium fluoride films on glass—773
Vandenbelt, J. M. Book review of *The Infrared Spectra of Complex Molecules* by L. J. Bellamy—909
Vander Sluis, Kenneth L.
—— **and J. R. McNally, Jr.** Fabry-Perot interferometer with finite apertures—39
Wise, John H. and ——. Preliminary report on the isotopic structure of the cadmium primary standard of wavelength—587
—— General formulas for least squares reduction of Zeeman data—605
van Heerden, P. J. Concept of distance in affine geometry—1000(L)
van Someren, E. H. S. and F. Lachman. *Spectrochemical Abstracts, Vol. IV; 1946–1951* (Book). Reviewed by Wallace R. Brode—363
VanVeld, Robert D. and K. W. Meissner. Interferometric wavelength measurements of germanium lines of a hollow cathode discharge—598
Varden, Lloyd E. Book review of *Exposure* (second edition) by W. F. Berg—1001
Villa, J. J.
McAlister, E. D., ——, **and C. D. Salzberg.** Rapid and accurate measurements of refractive index in the infrared—485
Villars, D. S.
Rekers, R. G. and ——. Flame zone spectroscopy of solid propellants. II. Double base propellant JPN—534
Vis, Vincent A. Method of obtaining uniform evaporated layers—906(L)
Vogl, George and Sven Täcklind. Spectacle tester—361(L)
Vollmer, J., J. Duke, and C. Wysocki. High-speed radiation pyrometer—215
von Schelling, Hermann
—— Concept of distance in affine geometry and its applications in theories of vision—309
—— Reply to P. J. van Heerden—1000(L)
Vos, J. J., A. Lazet, and M. A. Bouman. Visual contrast thresholds in practical problems—1065

Walker, Gordon L.
Shipley, Thorne and ——. Chromatic significance of spectrophotometric errors—1052
Walker, L.
Leibowitz, H. and ——. Effect of field size and luminance on the binocular summation of suprathreshold stimuli—171
Walls, Gordon L. and Gordon G. Heath. Neutral points in 138 protanopes and deuteranopes—640
Walsh, P. J. Diffusion of light in frosted and silica-coated incandescent lamps—558(L)
Washer, F. E. Book review of *Geometrical Optics* by L. C. Martin—663
Watson, John T.
Macdonald, Duncan E. and ——. Detection and recognition of photographic detail. I. Empirical data applicable to the prediction of performance of diffraction limited systems—715
Waymouth, John F.
Bitter, Francis and ——. Radiation temperature of a plasma—882
Weale, R. A. Stereoscopic acuity and convergence—907(L)
Weaver, Lelon A., Jr.
Harker, George S. and ——. Relative precision of range information obtainable with fixed ballistic and wandermark stereoscopic reticles—195
Weber, Gregorio. Photoelectric method for the measurement of the polarization of the fluorescence of solutions—962
Weldon, Rodney G.
Ashburn, Edward V. and ——. Spectral diffuse reflectance of desert surfaces—583
Westheimer, Gerald
—— **and Irving J. Tanzman.** Qualitative depth localization with diplopic images—116
—— Effect of binocular magnification devices on stereoscopic depth resolution—278
White, John U. and John N. Howard. Widths of infrared absorption bands in liquids and solids—662(L)
Wiggins, T. A.
Rank, D. H., ——, **A. H. Guenther, and J. N. Shearer.** Changes of rotational constants in some $^2\Pi$-$^2\Sigma$ bands of HCN and N_2O—953

Wilkins, H. P. and Patrick Moore. *The Moon* (Book). Reviewed by Donald H. Menzel—363

Williams, Dudley

Howard, J. N., D. E. Burch, and ——. Infrared transmission of synthetic atmospheres. I. Instrumentation—186

Howard, J. N., D. E. Burch, and ——. Infrared transmission of synthetic atmospheres. II. Absorption by carbon dioxide—237

Howard, J. N., D. E. Burch, and ——. Infrared transmission of synthetic atmospheres. III. Absorption by water vapor—242

Howard, J. N., D. E. Burch, and ——. Infrared transmission of synthetic atmospheres. IV. Application of theoretical band models—334

Burch, D. E., J. N. Howard, and ——. Infrared transmission of synthetic atmospheres. V. Absorption laws for overlapping bands—452

Sloan, Raymond, John H. Shaw, and ——. Thermal radiation from the atmosphere—543

Williams, Horatio Burt. Necrology—366

Wilson, William. *The Microphysical World* (Book). Reviewed by J. Rand McNally, Jr.—74

Wise, John H. and Kenneth L. Vander Sluis. Preliminary report on the isotopic structure of the cadmium primary standard of wavelength—587

Wolfe, R. N.

Higgins, G. C., ——, and R. L. Lamberts. Relationship between definition and resolving power with test objects differing in contrast—752

Wood, Alexander and Frank Oldham. *Thomas Young, Natural Philosopher, 1773–1829* (Book). Reviewed by Wallace R. Brode—230

Wulfeck, Joseph W.

Johannsen, Dorothea E., Patricia I. McBride, and ——. Studies on dark adaptation. I. The pre-exposure tolerance of the dark-adapted fovea—67

Johannsen, Dorothea E., Patricia I. McBride, and ——. Studies on dark adaptation. II. The pre-exposure tolerance of the human fovea adapted to different brightness levels—266

Wysocki, C.

Vollmer, J., J. Duke, and ——. High-speed radiation pyrometer—215

Wyszecki, Günter

Judd, Deane B. and ——. Extension of the Munsell renotation system to very dark colors—281

—— On projective transformations of the CIE-chromaticity diagram—383(A)/982

—— Book review of *Fünf Kapitel Farbenlehre* by E. Buchwald—1003

—— Theoretical investigation of colored lenses for snow goggles—1071

Yates, Harold W.

Taylor, J. H. and ——. Infrared evidence for atmospheric ozone at sea level—998(L)

Young, Francis A.

Polinsky, Don M. and ——. Effect of hue durations on adaptation to darkness—118

Young, N. O. Novel interferometer construction—996(L)

Zajaczkowska, A. Experimental test of Luneburg's theory. Horopter and alley experiments—514

Zweig, Hans J.

—— Autocorrelation and granularity. Part I. Theory—805

—— Autocorrelation and granularity. Part II. Results on flashed black-and-white emulsions—812

Subject Index to Volume 46

Key to Index use.

1. Subjects, not titles have been indexed.
2. Contents of papers (and abstracts of papers presented at meetings) have been indexed rather than a word breakdown of the title.
3. Principal subjects are given in boldface type. Cross-referenced subjects which should be consulted for a more thorough coverage are given in italics after the principal subject.
4. (L), (B), (E), (N) indicate: (L) Letters to the Editor; (B) Book Reviews; (E) Errata; and (N) Notes including Technical Notes, Personalia, and Necrology. The abstracts of papers presented at meetings are keyed by the same notation that identified them by day and session of presentation. If the paper covered by the abstract has been submitted and published in the same year as the abstract, this has been indicated by a solidus (/) between the abstract notation and the Journal page of the full article, i.e. 264(FA*12*)/622 indicates that the paper described in abstract No. FA*12* on page 264 has been published in full on page 622.
5. Subjects have been indexed in subdivisions according to key words with prepositions such as "on," "in," "of," "with," included where essential for euphonious interpretation but not affecting the alphabetical arrangement of the principal subject. In many cases, where obvious, these prepositions have been omitted.

Aberration
electronic analog computer used in—studies, 376(FB*32*)
images of partially coherent objects affected by small, 376(FC*61*)
investigated using microwave techniques, 376(FB*30*)
and nonuniform amplitude illumination effects, 376(FB*31*)
primary spherical—effect on one-dimensional transfer function, 377(FC*64*)
third-order
Seidel—and effect on transfer function, 377(FC*63*)
spherical
coefficients, 941
effect on one-dimensional transfer function, 377(FC*64*)
Absorption (see also *Spectra*)
absorption spectrum from 4400–8520 A over horizontal paths of 10.1 mi and 17.5 mi, 378(FD*77*)
oxygen, 378(FD*77*)
water, 378(FD*77*)
ozone in lower atmosphere indicated by infrared measurements, 360(L)
photometer for study of night airglow emissions at 5577, 5890, and 6300 A, 572
simulated conditions
technique for experimental measurement of total absorption for entire infrared absorption bands of atmospheric gases, 186
results for absorption
absorption laws for overlapping bands of water vapor and carbon dioxide, 452
by carbon dioxide, 237
application of theoretical band model: the Elsasser model, 334
by water vapor, 242
application of theoretical band model: the Goody model, 334
sky luminance measurements, 555(L)
solar energy in Spain, 378(FD*79*)
thermal radiation, 543
influence of ground level temperature and humidity on intensity and spectral distribution of — in 4–15μ region
transmission
infrared
horizontal paths of 10.1 mi, 3.4 mi, and 1000 ft in 0.5–15 microns, 378(FD*75*)
horizontal transmittance in the 0.7–1.1 micron region over sea paths, 54
ultraviolet sunlight
transmission of — and atmospheric turbidity, 565
turbidity and transmission of ultraviolet sunlight, 565
American Association of Spectrographers
conferences
eighth annual —, April, 1957, 1094(N)
seventh annual — on New Developments and Techniques in Spectroscopy, May, 1956, 156(N)
American Astronomical Society
meeting, March, 1956, 156(N)
American Standards Association
Safety color code compared with that of the International Organization for Standardization, 74(N)
standards
Dimensions for Medical X-Ray Film Cassettes (PH 3.21-1955), 154(N)
Distance Scales for Focusing Camera Lenses (PH 3.20-1955), 154(N)
Analytical Chemistry
special number entitled *Analytical Reviews*, April, 1956, devoted to review articles, 468(N)
Analytical Reviews
special number of *Analytical Chemistry*, April, 1956, devoted to review articles, 468(N)
Anderson, D. H.
named assistant superintendent, industrial laboratory, Kodak Park Works, 466(N)
Aperture
annular — and transfer function for, 285, 1096(E)
Association for Computing Machinery
meeting, Los Angeles, August 1956, 466(N)
Astronomy
optical — observatory
National Science Foundation grant to University of Michigan for study relating to establishing a, 1094(N)
stellar shadow patterns
direct observation of element motion, 904(L)
Astrophysics
aurora
automatic recorder of, 578
symposium
Seventh International, Liege, Belgium, July, 1956, 231(N)
Atmospheric Optics
ozone at sea level, 998(L)
solar aureole
photometry of, 1028
solar millimeter spectrum measured, 971
Atomic Instrument Company
merger with Baird Associates, Inc., 561(N)
Atomic Spectra (see also *Spectra*)

Baird Associates, Inc.
merger with Atomic Instrument Company, 561(N)

Barium Fluoride
transmission of — crystal in ultraviolet, 362(L)
Barnes Engineering Company
new publication called *Techniques* 75(N)
Bausch, Carl
received an honorary Doctor of Law degree from Syracuse University, 1956, 770(N)
Bausch & Lomb Optical Company
acquired stock interest in the United Kingdom Optical Company, now known as UK Optical Bausch & Lomb Ltd., 769(N)
Beckman Instruments, Inc.
work on a U. S. Atomic Energy Commission project, 769(N)
Billings, Bruce H.
named general manager, Baird Associates, 306(N)
Biophysics
national conference on —, Columbus, Ohio, March, 1957, 1094(N)
Birefringence
flow — studies
method for accurately locating extinction directions in weakly doubly-refracting media, 259
measurement of — with a modified polariscope, 142(L)
of quartz in 0.6–2.6μ region, 263
Bolometers
metal
theory and performance of, 469
Book Reviews
Die Anwendung der Photozellen. Paul Goerlich. Reviewed by P. H. Keck, 73(B)
Blur of the Retinal Image. G. A. Fry. Reviewed by R. M. Boynton, 907(B)
Exposure (Second Edition). W. F. Berg. Reviewed by L. E. Varden, 1001(B)
Fünf Kapitel Farbenlehre. E. Buchwald. Reviewed by G. Wyszecki, 1003(B)
Geometrical Optics. L. C. Martin. Reviewed by F. E. Washer, 663(B)
Grundlagen der Geometrisch-Optischen Abbildung. J. Picht. Reviewed by M. Herzberger, 1094(B)
The Infrared Spectra of Complex Molecules. L. J. Bellamy. Reviewed by J. M. Vandenbelt, 909(B)
An Introduction to Interferometry. S. Tolansky. Reviewed by K. M. Baird, 908(B)
Light Calculations and Measurements. H. A. E. Keitz. Reviewed by R. P. Teele, 73(B)
Le Mécanisme de la Vision des Couleurs. J. Ségal. Reviewed by D. L. MacAdam, 1002(B)
Mess- und Prüfmethoden der Optischen Fertigung Band 1.2. erweiterte Auflage. J. Picht. Reviewed by M. Reiss, 1002(B)
The Microphysical World. William Wilson. Reviewed by J. R. McNally, Jr., 74(B)
Microstructures of Diamond Surfaces. S. Tolansky. Reviewed by W. F. C. Ferguson, 305(B)
Mitteilungen aus den Forschungslaboratorien der Agfa Leverkusen-Muchen (Vol. I). H. Frieser, Editor. Reviewed by W. R. Brode, 560(B)
The Moon. H. P. Wilkins and P. Moore. Reviewed by D. H. Menzel, 363(B)
Optics and Sound. Charles A. Padgham. Reviewed by F. A. Jenkins, 363(B)
Physics Principles. S. S. Ballard, E. P. Slack, and E. Hausmann. Reviewed by H. P. Knauss, 363(B)
Recent Advances in Optics. E. H. Linfoot. Reviewed by R. E. Hopkins, 230(B)
Spectrochemical Abstracts, Vol. IV, 1946–51. E. H. S. van Someren and F. Lachman. Reviewed by W. R. Brode, 363(B)
Static and Dynamic Electron Optics. P. A. Sturrock. Reviewed by Walter Glaser, 229(B)
A Table of Solar Spectrum Wave Lengths, 11984 A–25578 A. O. C. Mohler. Reviewed by C. E. Moore, 909(B)
Thomas Young, Natural Philosopher, 1773–1829. A. Wood and F. Oldham. Reviewed by W. R. Brode, 230(B)
Ultraviolet and Visible Absorption Spectra (Index for 1930–1954). H. M. Hershenson. Reviewed by W. R. Brode, 1002(B)
Brightness (see *Luminance*)
Brown, Walter R. J.
awarded Adolph Lomb Medal, 1956, 911(N)

Cadmium Sulfide
photoconductivity
quenching of, 443
Calcium Hydroxide (Portlandite)
crystal structure of — and its relation to infrared absorption, 464(L)
Camera
fast-shuttering — and their limitations, 375(FB*22*)
lenses
focusing of — and American Standards Association Distance Scales, (PH 3.20-1955), 154(N)
resolving power of
influence of primary coma and astigmatism on low-contrast photographic, 552
Canadian Association for Applied Spectroscopy
formation of —, September 1955, 153(N)
Cells
infrared
new variable thickness, 895
multiple-traversal — used in measurement of infrared transmission of synthetic atmospheres, 186
Cesium Bromide
residual ray band with main peak at 119μ, 377(FD*72*)
Chemistry
instrumental — analysis
electrical methods in —, Massachusetts Institute of Technology course, 1956, 561(N)
optical methods in —, Massachusetts Institute of Technology course, 1956, 561(N)
C. I. E. (see *International Commission on Illumination*)
Coatings
lithium fluoride as reflection-reducing coating for near infrared, 157
magnesium fluoride
reflection-reducing coating for near infrared, 157
wear resistance of — on glass, 773
magnesium oxide in integrating sphere, 555(L)
mirror — for low visible and high infrared reflectance, 31
Coleman, Howard S.
appointed manager of research and engineering division, Bausch & Lomb Optical Company, 665(N)
named vice-president in charge of research and engineering, 1094(N)
Color (see also *Colorimetry*)
aptitude test of the Inter-Society Color Council
specifications and calibration of 1953 edition, 389
catalog of Munsell renotations, Japan Color Research Institute, 466(N)
comparator
complementary color — of Doberly, 383(SC*67*)
for glass standards for maple syrup, 293
complementary — comparator of Doberly, 383(SC*67*)
differences
slide rule calculator, 383(SC*65*)
visual sensitivities to, 382(SB*37*)
hue and fluorescent sources of illumination, article in *Illuminating Engineering*, April, 1956, 468(N)
image scanning systems, 383(SC*66*)
matching

Color (Continued)
comparison of successive with simultaneous, 382(SB*36*)
mixture
data for empirical derivation of CIE luminosity curve, 382(SC*61*)
data from National Physical Laboratory, 382(SC*53*)
and luminous efficiency of color normal observers, 382 (SB*35*)
mixture curves
filters whose spectral transmittances differ from — and their use in color photography, 381(SB*32*)
of natural objects, 180
Munsell renotation system extended to very dark colors, 281
science of, 1003(B)
of signal lights
apparent intensities of, 382(SB*34*)
space based on color difference perception, 383(SC*63*)
specification based on quantified opponent-colors theory, 416
standards
glass — for maple sirup, 293
Colorimetry (see also *Color*)
antireflection film data, 790, 1096(E)
chromaticity discrimination
small-field, 381(SB*33*)
CIE chromaticity diagram
projective transformations of, 383(SC*62*)/982
CIE luminosity curve
empirically derived from color-mixture data, 382(SC*61*)
color-matching
multivariate normality of, 46
measurement, 382(SC*52*)
and color appearance, 382(SC*51*)
Munsell renotation system extended to very dark colors, 281
sky — characteristics at Madrid, 378(FD*78*)
spectrophotometric errors
chromatic significance of, 383(SC*64*)/1052
tristimulus integrator, 381(SB*31*)
Combustion
symposium, August, 1956, 232(N)
Communication Theory
and antenna design, symposium, Boston University, 1957, 1004(N)
Computers
Burroughs E 101 Electronic Computer described, 368(TA*2*)
optical design with, 368(TA*3*)
ray tracing and computation of Seidel aberrations, 368(TA*4*)
electronic analog — used in aberration studies, 376(FB*32*)
SEAC (Standards Electronic Automatic Computer) used for optical design, 368(TA*1*)
Crittenden, Eugene Casson
necrology, 562(N)
Crystals
calcium hydroxide, portlandite
crystal structure and infrared absorption, 464(L)
ionic
optical constants of — in infrared from measurement of their reflectivities, 370(TB*30*)
magnesium hydroxide, brucite
crystal structure and infrared absorption, 464(L)
residual ray bands in — studied by interferometric spectroscopy, 377(FD*72*)
cesium bromide with main peak at 119μ, 377(FD*72*)
thallium bromide-iodide
refarction and dispersion of, 378(FD*76*)/956
ytterbium chloride
magnetic properties and absorption spectrum of, 885
zinc sulfide
potential distribution and localized photoeffects in, 611
Dawson, Leo H.
received the E. O. Hulburt Award, 770(N)
Densitometry
symposium, Royal Photographic Society, 769(N)
Detectors
radiation
integrating sphere and photomultiplier tube, 875
metal bolometers, 469
photodetector sensitivity as function of area, sensitive time, and long-wavelength cutoff, 609
radiometric techniques for visible and infrared, 377(FD*74*)
Diamond
microstructures of — surfaces, 305(B)
Diffraction Gratings (see *Gratings*)
Diffusion Theory
modified — applied to scattering from a point source in plane clouds, 927
Ebert Monochromator
slit mechanism for, 110
Electromagnetic Theory
boundary value problem, 371(TB*31*)/913
reflection and refraction at oblique incidence on dielectric-metallic interface, 371(TB*31*)/913
Electronic Computers (see *Computers*)
Electronics
for spectroscopists, possible publication of the Photoelectric Spectrometry Group, 305(N)
Electroretinogram (see *Vision*)
Emission (see *Spectra* and *Sources*)
Emissivity
spectral
of rhenium, 490, 1096(E)
Erlandson, Paul
named director of the department of physics, Central Research and Engineering Division, Continental Can Company, 307(N)
Errata (see *individual subject entries*), 1096(E)
Estey, Roger S.
appointed Staff Physicist, Western Division of Servomechanisms, 235(N)
Eye (see *Vision*)
Faraday Effect
in gases and vapors, 538
Verdet constants over spectral range 3635A to 9875A, 538
Die Farbe
special issue of papers presented at Heidelberg meeting on color, 1006(N)
Films
aluminum
evaporated
reflectance of — in vacuum ultraviolet, 369(TB*22*)/1009
surface bloom on, 905(L)
antireflection
colorimetric properties of glass-film combinations in reflection or transmission, 790, 1096(E)
effect on color in optical instruments, 790, 1096(E)
dielectric-metallic interface
reflection and refraction at oblique incidence on — as boundary value problem in electromagnetic theory, 371(TB*31*)
magnesium fluoride — on glass
wear resistance of, 773
multilayer
antimony trioxide for the ultraviolet, 141(L)
barium stearate — from 50–250 A in thickness and optical constants of, 615
broad band — for Fabry-Perot Interferometers, 228(L)
calculations including absorption done with IBM 701 calculator, 370(TB*26*)

lead chloride for the ultraviolet, 141(L)
for mirror coatings, 31
theory applied to study of color of pearls, 370(TB25)
pearls and their color, 370(TB25)
silver
semireflecting — for infrared interferometry, 628
thin
cadmium sulfide
optical properties of — in the ultraviolet, 1013
cadmium telluride
effect of indium vapor on optical sensitization of, 369(TB21)
calculator for — measurements, 994
Hartman method for measuring thickness and index of, 615
multiple reflections within absorbing, 779
optical analysis of — and the extension of the approximate equations, 142(L)
optical constants of, 370(TB29)
determined by photometric methods, 370(TB29)
determined by polarimetric methods, 370(TB29)
refractive index by Brewster angle of nonabsorbing, 369(TB23)
thickness of,
measured with modified multiple-beam Fizeau interferometer, 777
effects of phase change in measurements by fringes of equal chromatic order, 370(TB27)
reproduction of — by two-color monitoring methods, 999(L)
transmission through — transparent film
phase shift, 370(TB28)
zinc sulfide
optical properties of — in ultraviolet, 1013
titanium
optical properties and oxidation of evaporated, 370(TB24)
uniform evaporated, 906(L)
unimolecular
thickness and refractive index of
by Hartman method, 615
stepped interference reflector method
theory of, 621
experimental, 782

Filters
all-dielectric interference
used in continuous flow infrared gas analyzer, 164
interference
tellurium and sodium chloride multilayer — for infrared region from 5 to 20 μ, 377(FD73)
nickel sulfate-sorbitol complex (semi-solid), 1038
photographic
quality factor for — whose spectral transmittance differs from color mixture curves, 381(SB32)/821
ultraviolet region
semi-solid nickel sulfate-sorbitol complex, 1038

Fluorescence (see *Luminescence* and *Phosphors*)
solutions
photoelectric method for measurement of polarization of, 962

Friedman, Joseph S.
necrology, 770(N)

General Electric Recording Spectrophotometer
curves
new method for hand-integration of, 430

George Eastman House Associates
formation of, 156(N)

Glass
antireflection coatings
magnesium fluoride and its wear resistance, 773
code system for specifications for optical — as a five digit number, 375(FB28)
control of optical —
refractometer for, 488
machining, ultrasonic, of, 371(TC61)
for nuclear work, 371(TC51)
optical image quality and effect of striae on, 375(FB26)
refractive index
high — glass in optical computing, 375(FB27)
measured rapidly and accurately in infrared, 485
refractometer for — control, 488
specifications for optical — parts
digital code system, 375(FB28)
surface tested by incident light Schlieren method, 1090(L)

Gloss
standard — scale for porcelain enamels, 465(N)

Grating
absorption
as a Schlieren edge used in testing of glass surfaces, 1090(L)
diffraction
reflection
anomalies for coarse infrared, 50
up to 10 000 lines per inch and 30 inches long
application to length measurement and machine control, 372(TC64)
echelette — and its theory, 104

Gray, Dwight E.
appointed Program Director for Government Research Information in the Office of Scientific Information of the National Science Foundation, 305(N)

Green, Newton B.
elected a vice president, Eastman Kodak Company, 562(N)

Grimson, Samuel B.
necrology, 467(N)

Henry, Robert L.
appointed head of department of physics, Wabash College, 562(N)

Hilger Journal
bulletin published by Hilger and Watts, Ltd., 231(N)

I. C. I. (see *International Commission on Illumination*)

Illuminating Engineering Society
publication of "I.E.S. Recommended Practice for Office Lighting," 1006(N)

Illumination
submarine
degree of polarization, 362(L)

Image
asymmetrical
contrast-transmission functions, 707
color
in instruments with large number of air-glass surfaces, 790
antireflection films and, 790
television pictures simulated and their subjective sharpness, 681
contrast of — improved by filtering spatial frequencies, 377(FC62)
diffraction
of partially coherent objects affected by small aberrations, 376(FC61)
transfer function for an annular aperture, 285, 1096(E)
error theory, 132
evaluation
geometric ray trace focal plots, 677
spatial phase shifts and optical transfer function, 377(FC63)
formation
and evaluation of —, symposium, Rochester, June, 1955, 677(N)
special issue of JOSA containing papers presented, 677

Image (Continued)
by reconstructed wave fronts, 825
physical principles and methods of refinement, 825
infrared
reflection image reducer, 433
limits of optical, 376(FC*53*)
micro
automatic — file, 910(N)
microwave diffraction — formed by nonuniformly illuminated lenses, 376(FB*31*)
photographic
detection and recognition of — detail, 715
empirical data for prediction of performance of diffraction limited systems, 715
motion picture quality and photo-optical transmission systems, 691
resolving power and definition, 752
test objects differing in contrast, 752
photographic emulsion and lens — processes
contrast-transmission functions determined experimentally, 707
quality
characterization of an image-forming system, 755
criteria derived from skew traces, 699
effect of striae on, 375(FB*26*)
effects of supersonic air flow on, 375(FB*24*), 563(E)
photoelectric methods of evaluation compared, 764, 1096(E)
transmission factors and optical design, 740
reflection — reducer, 433
resolving power and recognition, 686
visual
optical and photoelectric analog of the eye, 721
recognition of forms against a complex background, 758
Industrial Research Laboratories of the United States
publication of the National Academy of Sciences—National Research Council for 1955, 664(N)
Instruments
compensator for observation of microscopic transparent objects, 376(FC*51*)
Gordon Research Conference on —, July, 1956, 466(N)
light-amplifying devices
literature guide, 365(N)
null indicator utilizing germanium transistors, 144(L)
polarization elements in optical
angular aperture functions of positive dichroic film polarizers, 435
x-ray fluorescence
for measurement of metal coating to millionth of an inch, 1004(N)
Interference
contrast methods and Mach-Zender interferometer compared in wind tunnel applications, 375(FB*25*)
fringes
Fizeau — for thickness measurements, 777
Young's — as a fourier synthesizer, 548
light source size effect on, 979
three-beam — and measurement of the thickness of microscopic objects, 372(TD*74*)
Interferometer
Block
arrangement whereby interferometer is built on a micrometer, 996(L)
calibration of infrared spectrometers by, 255
corner-cube
wavelength comparisons by, 380(SB*21*)
Fabry-Perot
broad-band multilayer film for, 228(L)
with finite apertures, 39
semireflecting silver films for, 628
spectrophotometry with a, 556(L)
variable pass band — for near infrared, 381(SB*25*)
vacuum chamber and cadmium oven for control of temperature and pressure changes, 36
Fizeau
modified for measurement of thickness of thin films, 777
polarized beam, 380(SB*23*)/950
"straightness" interferometer for engineering purposes, 381(SB*26*)
three-beam, 380(SB*22*)
measurement of quartz and fused silica, 380(SB*22*)
Interferometry
differential, 380(SB*24*)
germanium lines of a hollow cathode discharge measured interferometrically, 598
introduction to, 908(B)
linear gas mass flow device, 463(L)
multiple beam
for calibrating sensitive vibrometers, 191
surfaces, machined, examined interferometrically, 371 (TC*62*)
three-beam, 380(SB*22*)
wavelength secondary standards in near infrared, 477
International Commission on Optics
fourth triennial congress of, Cambridge, Massachusetts, March, 1956, 387(N), 564(E)
minutes of business meeting, 666(N)
International Organization for Standardization
safety color code compared with that of the American Standards Association, 74(N)
Intersociety Color Council
aptitude test
specifications and calibration of 1953 edition of, 389
ISO (see *International Organization* for *Standardization*)

Jaffe, Joseph H.
received Weizmann Prize for 1956, 1094(N)
James, T. Howard
received Photographic Society of America's Technical Paper Award for 1955, 1006(N)
Joint Commission for Spectroscopy
meeting, June, 1956, 1004(N)
transactions of Lund meeting, July, 1954, 145
Sub-Committee Reports
Collecting of Data Concerning Atomic Spectra, 147
Exchange of Research Problems, 149
Joshi Effect
change in light output associated with current change of irradiation under low-frequency discharges in air, 1092(L)

Kelly, Mervin J.
elected to board of directors, Bausch & Lomb Optical Company, 665(N)

Lamps
incandescent
diffusion of light in frosted and silica-coated, 558(L)
Land, Edwin H.
appointed Fellow of School for Advanced Study, Massachusetts Institute of Technology, 467(N)
Lens
aberrations
microwave technique investigation of, 376(FB*30*)
nonuniform amplitude illumination and — combined effects, 376(FB*31*)
primary spherical — effect on one-dimensional transfer function, 377(FC*64*)
third-order
and aspheric surfaces, 288

Seidel — effect on transfer function, 377(FC*63*)
spherical — effect on one-dimensional transfer function, 377(FC*64*)
aspheric surfaces and third-order aberration, 288
astigmatism
toric skew — computed, 368(TA*5*)
camera
focusing of
distance scales (ASA standard PH 3.20-1955), 154(N)
resolving power
influence of primary coma and astigmatism on low-contrast photographic, 552
colored — for snow goggles
theoretical investigation of, 1071
definitions of
corrected curve —, Optical Manufacturers Association, 366(N)
noncorrected —, Optical Manufacturers Association, 366(N)
distortion determined rapidly, 231(N)
double aspheric curved field —, F/2, 1091(L)
— film systems
method for producing sinusoidal exposure distribution for direct testing of, 867
image
asymmetrical
contrast-transmission functions determined experimentally, 707
process of lens and photographic emulsion combined
contrast-transmission functions determined experimentally, 707
quality
evaluation
criteria derived from skew traces, 699
geometric ray trace focal plots, 677
photoelectric methods compared, 764, 1119(E)
photo-optical transmission systems and picture quality in projected motion pictures, 691
resolving power and recognition, 686
subjective sharpness of simulated color television pictures, 681
transmission factors and optical design, 740
laminated, 998(L)
least-squares method for optical correction, 223
objective
photographic
chromatic correction of, 368(TA*7*)
triplet —, theory and initial design of, 368(TA*6*)
quality standards of the Optical Manufacturers Association, 366(N)
telephoto distortionless, 22
test objects
scanning integrator for producing sinusoidal, 867
toric skew astigmatism, 368(TA*5*)
varifocal — system
optically compensated —, general theory of, 369(TA*9*)
Zoomar systems generalized theory, 369(TA*8*)

Light
amplification devices, 227(L)
luminous and radiant power gains, 227
calculations and measurements, 73(B)
resolving power of visible, 359(L)
scattered
Mie Theory of
coefficients for spherical particles of refractive index 2.00, 1001(L)
from red blood cells measured, 372(TD*71*)
velocity of — in moving media, 373(TD*78*)

Light and Lighting
review on the subject of lighting in the April–May issue, 769(N)

Longwell, Frederick P.
appointed project engineer Airborne Computer Laboratories, Military Products Division, International Business Machines, 307(N)

Luminance (see also Brightness)
sky — measurements, 555(L)

Luminescence
fluorescence
of dysprosium ion at 4.2° and 77°K, 495
low — intensities measured, 556(L)

Mach-Zender Interferometer
comparison of — and interference-contrast methods, in wind tunnel applications, 375(FB*25*)

Macroscopy
compensator for observation of transparent objects, 376(FC*52*)

Magnesium hydroxide (Brucite)
crystal structure of — and its relation to infrared absorption, 464(L)

Mees, C. E. K.
resigned as vice-president in charge of research at Eastman Kodak Company, 233(N)

Microphotometer (see *Densitometer*)

Microscope (see also *Microscopy*)
polarizing
device to obtain high extinction at high apertures in, 372(TD*72*)

Microscopy (see also *Microscope*)
electron
course in —, Cornell University, June, 1956, 466(N)
out-of-focus-effect on small phase objects
quantitative interpretation of, 372(TD*73*)
photography with
phosphor's afterglow used in flash, 1094(N)
thickness measurement of microscopic objects by three-beam interference, 372(TD*74*)

Microwaves
and optics, symposium, Washington, D. C., 1956, 1006(N)

Mirrors
coatings for low visible and high infrared reflectance, 31
Al-Ge-SiO, 31
Al-SiO-Al-SiO, 31
Au-Ge-SiO, 31
Cu-Ge-SiO, 31
rotating
deformation of — from centrifugal force, 1090(L)

Monochromator
simple — for infrared, 997(L)

Moon, 363(B)

National Bureau of Standards
standard gloss scale for porcelain enamels, 465(N)

National Science Foundation
Dwight E. Gray appointed Program Director for Government Research Information in the Office of Scientific Information, 305(N)
grant to University of Michigan for studies relating to an optical astronomy observatory, 1094(N)
Russian translation program expanded, 769(N)

Necrology
Crittenden, Eugene Casson, 562(N)
Friedman, Joseph S., 770(N)
Grimson, Samuel B., 467(N)
Taylor, Joseph, 910(N)
Williams, Horatio Bunt, 366(N)

Nuclear Science and Engineering
official organ of the American Nuclear Society, 232(N)

Optical Crystals (see *Crystals*)
Optical Manufacturers Association
definitions of corrected curve and noncorrected lenses, 366(N)
lens quality standards, 366(N)
Optical Society of America
annual reports, 1955
editor of publications, 670
secretary, 671
treasurer, 673
local sections
New England
contributed-paper meeting, 665(N)
abstracts of, Section 665(N)
meeting in the form of a *conversazione*, 233(N)
officers and councilors of, 306(N)
Optical Society of America Assistant for Local Sections, W. L. Hyde, 233(N)
relationship to the National Society, 233(N)
medals
Adolph Lomb
awarded Walter R. J. Brown, 1956, 911(N)
Frederic Ives
awarded Edward O. Hulburt, 1955, 1
medal address by Edward O. Hulburt, 5
meetings
October 5, 1955
minutes of meeting of Board of Directors, 155(N)
February 1, 1956
session at the 25th anniversary meeting of the American Institute of Physics, 308(N)
April, 1956, 388(N)
minutes of meeting of Board of Directors, 669(N)
October, 1956, 676(N)
Optical System
calculus for
electromagnetic theory, 126
design
of — with aspheric surfaces, 288
f/2 double aspheric curved field lens, 1091(L)
with Standards Electronic Automatic Computer, 368 (TA*1*)
Fourier synthesizer, 548
quality criterion
transfer function for an annular aperture, 285, 1096(E)
testing methods involved in the manufacture of optical systems, 1002(B)
Optics
advances in, 230(B)
in the atomic age
symposium, Optical Society meeting, April, 1956, 371
electron, 229(B)
geometrical, 663(B), 1094(B)
and microwaves, symposium, Washington, D. C., 1956, 1006(N)
and sound, 363(B)
volume on problems in contemporary —, collection of symposium papers, Florence, Italy, 1005(N)
Optics and Spectroscopy
new Russian journal published May, 1956, 1008(N)
Ottawa Symposium on Applied Spectroscopy
meetings
September, 1955, 153(N)
formation of Canadian Association for Applied Spectroscopy, 153(N)
September, 1956, 365(N), 769(N)

Periscope
binocular aircraft, 944
Perkin Centennial, 468(N)
Perkin-Elmer Corporation
brochure for spectrometer accessories, 562(N)
Perkin-Elmer 12-C Spectrometer
modified for refractive index measurements in the infrared, 485
Perkin-Elmer Model 21 Spectrophotometer
auxiliary recording system for, 354
Personalia
Anderson, D. H., 466(N)
Bausch, Carl, 770(N)
Billings, Bruce H., 306(N)
Brown, Walter R. J., 911(N)
Coleman, Howard S., 665(N), 1096(N)
Dawson, Leo H., 770(N)
Erlandson, Paul, 307(N)
Estey, Roger S., 235(N)
Green, Newton B., 562(N)
Henry, Robert L., 562(N)
Jaffe, Joseph H., 1095(N)
James, T. Howard, 1006(N)
Kelly, Mervin J., 665(N)
Land, Edwin H., 467(N)
Longwell, Frederick P., 307(N)
Mees, C. E. K., 233(N)
Roach, William T., 562(N)
Rodney, William S., 770(N)
Staud, Cyril J., 234(N)
Sterner, John, 562(N), 1096(E)
Sutherland, G. B. B. M., 467(N)
Teele, Ray P., 235(N)
Tillotson, Edwin Ward, 1006(N)
Wittel, Otto, 562(N)
Phosphorescence (see *Luminescence* and *Phosphors*)
Phosphors
inorganic
excited in extreme ultraviolet, 346
Photocells
cadmium selenide cells, 662(L)
cadmium sulfide cells, 662(L)
zinc sulfide cadmium sulfide cells, 662(L)
Photoconductivity
cadmium sulfide
quenching of, 443
zinc sulfide crystals
potential distribution and localized photoeffects, 611
Photodissociation
cadmium sulfide in the red and near infrared sensitized with cyanine dyes, 13
of cyanine dyes, 10
Photoelectricity
its applications, 73(B)
Photographic Society of America
national color processing conference, Rochester, May, 1956, 365(N)
Photographic Emulsions
color
graininess judgments and role of chromaticity difference, 832
granularity
autocorrelation and, 373(TD77)/805, 812, 1019
experimental, 812
flashed black-and-white emulsions, 812
theory, 805
time-series analysis of microphotometer traces applied to Selwyn's, and Jones and Higgins' measures of granularity, 805
color
graininess judgments and role of chromaticity difference, 832
frequency distribution of, 373(TD*76*)

image quality
definition and resolving power when test objects differ in contrast, 752
detection and recognition of photographic detail, 715
empirical data for prediction of performance of diffraction limited systems, 715
noise
frequency distribution of, 373(TD*76*)
panchromatic negative films
resolving power of, 315
plates
characteristic curves of, 300
minimum effect of grain, 300
print-out effect in silver halides, 218
quality
contrast transfer functions for estimating, 376(FC*52*)
resolving power of, 315
and definition when test objects differ in contrast, 752
speed determination
methods for approximating fractional gradient speeds, 324
delta *X* speed criterion, 324
use of Luther's equation, 324
x-ray film
reciprocity law
failure in reversal region, 801
validity for high-intensity exposures in negative region, 797

Photography
apparatus
American Standards
Dimensions for Medical X-Ray Film Cassettes (PH 3.21-1955), 154(N)
Distance Scales for Focusing Camera Lenses (PH 3.20-1955), 154(N)
color
filters for
quality factor when transmittances differ from color mixture curves, 381(SB*32*)/821
processing conference, Rochester, May, 1956, 365(N)
detail
detection of isolated — and calculation of probability of, 380(SA*14*)
function of image area and image contrast, 380(SA)*14*
recognition of — effect of image motion, 379(SA*13*)
exposure, 1001(B)
high-speed
third International Congress on High-Speed Photography, London, September, 1956, 664(N)
image formation
sublatent
critical time period and Schwarzschild Exponent, 17
motion pictures
photo-optical transmission systems and picture quality in projected, 691
objectives
chromatic correction of, 368(TA*7*)
triplet photographic
theory and initial design, 368(TA*6*)
research in the Agfa organization, 560(B)
sensitization
photoconductivity of some cyanine dyes, 13
contact potential difference between sensitizing dye and substrate, 1016

Photokeratoscope
using a hemispherical object surface, 374(FA*14*)

Photometer, Photometry
incremental — for measuring very small changes in optical absorption, 218
infrared
filter — for continuous determination of single component of gaseous mixture, 164
photoelectric polarization — for measurement of polorization of fluorescence of solutions, 962
recording night sky, 572
of solar aureole, 1028

Photomicrography
flash
use of phosphor's afterglow, 1094(N)

Photosensitization
of nucleic acids and pyrimidines, 384(SD*77*)

Physics
microphysical world, 74(B)
principles of, 363(B)

Physics Today
special issue commemorating the 25th anniversary of the American Institute of Physics, 156(N)

Polarization (see also *Light*)
Faraday effect in gases and vapors, 538
Verdet constants measured in the spectral range 3635A to 9875A, 538
submarine illumination and degree of, 362(L)

Polarizers
dichroic
transmittance of a train of three, 528
high-extinction
Polaroid HN 22, positive dichroic film polarizer and its angular aperture functions, 435
spectral properties of, 229(L)
positive dichroic film
angular aperture functions of, 435

Potassium Iodide
oscillator strength of V_2-center in crystalline, 384(SD*75*)

Pyrometer
radiation — of high-speed, 215

Quartz
alpha
peculiarities in optical properties along the normal to the optic axis, 375(FB*23*)
birefringence
dispersion of — of quartz in the near infrared, 263

Radiance
sky
and photometry of solar aureole, 1028

Radiation, Radiant Energy (see also *Light*)
atmospheric
thermal, 543
atomic
optical viewers for use in areas of intense, 371(TC*52*)
detectors
infrared
wavelength dependence of radiation-noise limits on sensitivity of, 609
metal bolometers, 469
radiometric techniques for visible and infrared, 377(FD*74*)
exposure, publication of the National Bureau of Standards on regulation by legislative means, 305(N)
flux distribution
network representation of the integrating sphere, 343
infrared
sky spectrum at White Sands, New Mexico, 303(L)
from White Sands, New Mexico, 303(L)
sensitivity response of pyrolyzed organic films, 209
National Bureau of Standards publications on
Regulation of Radiation Exposure by Legislative Means, 305(N)
X-Ray Protection, 305(N)
Planck distribution
direct-reading — slide rule, 879
shield
plane circular source, 934

Radiation, Radiant Energy (Continued)
temperature of plasma, 882
units and protection, meetings of International Commission on Radiological Units and International Commission on Radiological Protection, Geneva, 1956, 910(N)
Range Finders
fixed ballistic and wandermark stereoscopic reticles compared, 195
short base, 375(FB*21*)
Reciprocity Law (see *Photographic Emulsions*)
Reflectance
absolute — of magnesium oxide evaluated for standardization purposes, 378(FD*81*)
dielectric-metallic interface
oblique incidence on — as boundary value problem in electromagnetic theory, 913
of goldblack deposits in 254–1100 mμ region, 160
infrared
coatings
of magnesium fluoride and lithium fluoride for reduction of, 157
mirror — for high, 31
of metals and single and multilayer coatings, 31
network representation of the integrating sphere, 343
semireflecting silver films for infrared interferometry, 628
spectral
diffuse — of desert surfaces, 583
effect of elimination of specular component on efficiency and error of integrating sphere, 428
standard
working — of "compensated opal," 72(L)
ultraviolet
evaporated aluminum films, 369(TB*22*)/1009
visible
mirror coatings for low, 31
Reflectivity, Reflection (see also *Reflectance*)
Reflectometer
multipurpose
transistor operated null indicator, 144(L)
simple comparison, 996(L)
Refraction
dielectric-metallic interface
oblique incidence on — as boundary value problem in electromagnetic theory, 913
double- — media
accurate location of extinction directions by means of a Nakamura plate and a λ/4 plate, 259
infrared — measured rapidly and accurately, 485
thallium bromide-iodide in 0.57 to 39.22 micron range, 378(FD*76*)/956
Refractometer
critical angle
shielding errors in, 657
for glass control, 488
phase contrast
streaming liquids continuously registered, 373(TD*75*)
Resolution
and information, 72(L)
and wavelength, 901(L)
sonic "macroscope" experiment, 901(L)
Rhenium
spectral emissivity of — at 1537° and 2772°C in 0.35–2.8μ region, 490, 1096(E)
Roach, William T.
elected a vice president of Eastman Kodak Company, 562(N)
Rodney, William S.
awarded a Guggenheim Fellowship, 770(N)
Royal Photographic Society of Great Britain
issued periodicals catalog, 1094(N)
Ruling Engine
scales, accurate and linear, ruled on, 371(TC*63*)
Scattering
goldblack deposits
scattering-unit-size, 160
instrument for measurement of light — from red blood cells, 372(TD*71*)
Mie theory of light
coefficients for spherical particles of refractive index 2.00, 1001(L)
solar aureole measurements interpreted by, 1028
point source in plane clouds, 927
Schlieren Methods
incident light — for testing of glass surfaces, 1090(L)
Scintillation Counters
optical problems in, 371(TC*53*)
Sensitization
optical
of cadmium sulfide by cyanine dyes, 13
contact potential difference between sensitizing dye and substrate, 1016
Shockley Semiconductor Laboratory
established by Beckman Instruments, Inc., 466(N)
Slit
function and spectral line half-widths and intensities, 1060
mechanism for spectrometer
Society for Applied Spectroscopy
meetings of the New York and Philadelphia Sections, 153
Sources
arc
carbon
dc — in noble gases, 77
anode temperatures and characteristics, 77
effect of alkali and alkaline earth chlorides, 83
enhancement of certain metallic ion lines, 138
spectral radiance of — from 1900 to 2500 angstroms, 101
device to control atmosphere for — in emission spectroscopy, 359(L)
zirconium — for infrared microspectrometer, 899
electron or field-emission ion
points produced by electrolytic etching of wire under tension, 1094(N)
lamp
mercury-198 excited in a liquid nitrogen cooled hollow cathode lamp, 304(L)
sapphire — for short wavelength photochemistry, 768(L)
light
electrodeless discharge tube excited by high efficiency microwaves, 339
size influence on interference fringes, 979
plane circular
shielding of radiation from, 934
point
scattering from — in plane clouds, 927
Spark (see *Sources, Spectra*)
Spectacle
lenses
theoretical investigation of, 1071
colored — for snow goggles
effect on visual acuity of small variations in power of — in monocular vision, 373(FA*1*)
tester, 361
Spectra
absorption line half-widths and intensities, 1060
slit function effects on, 1060
photosensitization of nucleic acids and pyrimidines, 384(SD77)

solar millimeter spectrum measured, 971
total absorption and overlapping effect of two exactly identical spectral lines, 590
Atomic, Absorption, Ultraviolet, Visible
dysprosium ion at 4.2° and 77°K, 495
rubidium in the presence of foreign gases such as krypton and xenon, 182
Atomic, Emission, Infrared
helium first spectrum, 999(L)
analysis of — lines with electronic digital computers, 1043
ruthenium, 1043
Atomic, Emission, Ultraviolet, Visible
boron
term $1s^2 2s 2p 3s\,^4P°$ in first spectrum, 100
cadmium, 1046
energy levels and wavelengths of natural — and cadmium-114 in 2144–8200 A, 94
primary standard of wavelength and its isotopic structure, 587
calcium and its wave functions, 350
copper and its wave functions, 350
curium
isotope shift and wavelengths of — in 3050–5250 A region, 91
germanium in 2019–4685 A region, 598
hydrogen
Lyman alpha radiation (1215.6A) in solar spectrum, 384(SD*73*)
measurement of Lamb shift of ground state of atomic, 384(SD*72*)
manganese and its wave functions, 350
manganese, Mn II, 449
mercury-198, 477
polonium I
multipole lines in first spectrum of, 663(L)
ruthenium, 1043
technetium, TcI, 383(SD*71*)
titanium and its wave functions, 350
vanadium and its wave functions, 350
zinc and its wave functions, 350
Molecular, Absorption, Infrared
absorption laws for overlapping bands of water vapor and carbon dioxide in synthetic atmospheres, 452
ammonia up to 15μ, 377(FD*71*)
benzene absorption band width, 662(L)
calcium hydroxide (portlandite) and its crystal structure, 464(L)
carbon dioxide in synthetic atmospheres, 237
application of theoretical band model, the Elsasser model, 334
complex molecules, 909(B)
β conidendrin mull absorption band width, 662(L)
cyclohexane absorption band width, 662(L)
deuterium fluoride, liquid, 895
deuterium oxide, liquid, 895
disiloxane up to 15μ, 377(FD*71*)
ethylene up to 15μ, 377(FD*71*)
hydrogen cyanide, 477, 953
changes in rotational constants in some $\Pi - \Sigma$ bands, 953
hydrogen fluoride, liquid, anhydrous, 895
liquids and solids
widths of absorption bands, 662(L)
magnesium hydroxide (brucite) and its crystal structure, 464(L)
methyl amine up to 15μ, 377(FD*71*)
naphthalene absorption band width, 662(L)
nitrous oxide
changes in rotational constants in some $\Pi - \Sigma$ bands, 953
ozone
atmospheric, at sea level, 998(L)
lower atmosphere, 360(L)
application of theoretical band model, the Goody model, 334
pinene fraction absorption band width, 662(L)
solar and telluric wavelengths and intensities, 909(B)
toluene absorption band width, 662(L)
water
liquid, 895
vapor
in synthetic atmospheres, 242
up to 15μ, 377(FD*71*)
ytterbium chloride, 885
Molecular, Absorption, Ultraviolet, Visible
index for 1930–1954, 1002(B)
nitrogen at the wavelength of hydrogen Lyman alpha line (1215.6A) with nondispersive photometry, 384 (SD*74*)
oxygen at the wavelength of hydrogen Lyman alpha line (1215.6A) with nondispersive photometry, 384(SD*74*)
potassium iodide, 384(SD*75*)
Molecular, Emission, Infrared
CN band (2,0) measured, 385(SD*78*)
Theory
colored compounds
sodium vapor lamp excitation source, 661(L)
diazocyclopentadiene, 661(L)
Franck-Condon factor surfaces, 384(SD*76*)
iron pentacarbonyl, 661(L)
nitrobenzene, 661(L)
Zeeman Effect
dysprosium ion, 495
least squares reduction of — data, 605
ytterbium chloride, 885
Spectrochemical Analysis
abstracts, 1946–51, 363(B)
dc carbon arc in noble gases
anode temperatures and characteristics of, 77
effect of alkali and alkaline earth chlorides on, 83
enhancement of certain metallic ion lines, 138
steel standards, British Bureau of Analyzed Samples, Ltd., 664(N)
Spectro-Isotopic Assay
polonium-208-209 mixtures, 87, 462(E)
course in modern industrial —, Boston College, July, 1956, 466(N)
Spectrometer, Spectrometry, Spectrophotometry, Spectrophotometer (see also *Photometer*)
absorption
apparatus for obtaining — spectra at pressures to 6000 bars, 557(L)
autocollimating, 143(L)
chemical — of the Nuclear Magnetics Corporation, 364(N)
chromatic significance of spectrophotometric errors, 383 (SC*64*)/1052
of colored samples
cuvettes
for measurements of micro-organisms and living tissues, 141(L)
Fabry-Perot Interferometer for, 556(L)
infrared
calibration curve for prism, 560(L)
imaging of exit slit
reflection image reducer, 433
interferometric frequency calibration of, 255
systems compared
noise factor, instrumental simplicity, and general performance, 422
micro-organisms and living tissues
special cuvettes for, 141(L)

Spectrometer, Spectrometry, Spectrophotometry, Spectrophotometer (Continued)
prism — and multiple-traversal absorption cell for measurement of infrared transmission of synthetic atmospheres, 186
reflectance
working standard of "compensated opal," 72(L)
slit mechanism, 110
Spectroscopy
absorption
temperature measurement of hot gases, 246
electronics for —, possible publication of the Photoelectric Spectrometry Group, 305(N)
emission
device to control atmosphere for arc, 359(L)
flame
of solid propellants
double base propellant JPN, 534
spectral absorption method to determine population "temperatures" in hot gases, 246
infrared
course at Massachusetts Institute of Technology, August, 1956, 365(N)
Fisk University annual — institute, August, 1956, 664(N)
Gordon Research Conference on —, August, 1956, 676(N)
high-resolution — with small grating spectrometer in the 5–15μ region, 377(FD*71*)
interferometric far — for study of residual ray bands in crystals, 377(FD*72*)
windows for high pressure
sodium chloride and calcium fluoride, 464(L)
photographic plates and their use in, 300
spark discharge
air blast effect on, 889
symposia
American Association of Spectrographers, eighth annual —, April, 1957, 1094(N)
applied, Ottawa, September, 1955, 153(N), 365(N), 769(N)
fifth annual southeastern seminar, University of Florida, January, 1957, 1008(N)
molecular structure, June, 1956, 232(N), 465(N)
wavelength and intensity measurements
semiautomatic method for, 456
Sphere
integrating
coating — with magnesium oxide in improved technique, 555(L)
elimination of specular component on efficiency and error of, 428
network representation of, 343
and photomultiplier tube as detector unit for irradiance measurements, 875
Standards
color
glass — for maple sirup, 293
"compensated opal" working — equivalent to magnesium oxide, 72(L)
gloss
scale for porcelain enamels, 465(N)
reflectance
absolute — of magnesium oxide for standardization purposes, 378(FD*81*)
steel — for spectrochemical and wet chemical analysis, British Bureau of Analysed Samples, Ltd., 664(N)
wavelength
primary — of cadmium and its isotopic structure, 587
secondary — measured interferometrically in near infrared, 477
Standard Electronic Automatic Computer (SEAC)
optical design with, 368(TA*1*)
Staud, Cyril J.
elected vice-president in charge of research of Eastman Kodak Company, 234(N)
Sterner, John
named director of Flight Test Operations for the Guided Missile Research Division, Ramo-Wooldridge Corporation, 562(N), 1096(E)
Surfaces
diamond
microstructures of, 305(B)
machined
interferometric examination of, 371(TC*62*)
Sutherland, G. B. B. M.
appointed Director of the National Physical Laboratory, England 467(N)
Symposia
astrophysical
seventh international —, Liege, Belgium, July, 1956, 231(N)
biophysics
National — Conference, Columbus, Ohio, March, 1957, 1094(N)
combustion
sixth international symposium, New Haven, Connecticut, August, 1956, 232(N)
communication theory and antenna design, Boston, University, 1957, 1004(N)
densitometry, Royal Photographic Society, 769(N)
image formation and evaluation, University of Rochester, June, 1955, 677
optics
in the atomic age, Optical Society meeting, April, 1956, 371
and microwaves, George Washington University, 1006(N)
spectroscopy
applied
Ottawa symposium, 153(N), 365(N), 769(N)
fifth annual southeastern seminar, University of Florida, January, 1957, 1008(N)
molecular structure and —, June, 1956, 232(N), 465(N)
x-ray
analyses
industrial applications, Denver, Colorado, August, 1956, 305(N)
microscopy and microradiography, Cambridge, England, August, 1956, 365(N)

Tantalum
spectral emissivity, 378(FD*80*)
Taylor, Joseph
necrology, 910(N)
Technical Calendar
75, 154, 235, 307, 367, 467, 563, 668, 770, 911, 1007, 1096
Teele, Ray P.
appointed member of Engineering Division of the National Research Council, 235(N)
Telecolorimeter
measurement of colorimetry of sky at Madrid, 378(FD*78*)
Television
color
optical and phototlectric analog of the eye, 721
subjective sharpness of simulated, 681
Temperature
"radiation"
plasma, 882
Thallium Bromide-Iodide (KRS-5)
refraction and dispersion of, 378(FD*76*)/956
Tillotson, Edwin Ward
retired as Director of Research, Mellon Institute, 1006(N)

Transmission (see also *Transmittance*)
infrared — of synthetic atmospheres
absorption laws for overlapping bands, 452
instrumentation, 186
absorption by carbon dioxide, 237
absorption by water vapor, 242
light — and optical errors in size analysis of a dispersion, 200
ultraviolet
barium fluoride crystal, 362(L)
Transmissometer
thallous sulfide cell — for horizontal atmospheric transmittance measurements, 54
Transmittance (see also *Transmission*)
infrared
of flat plates uncoated and coated with magnesium fluoride and lithium fluoride, 157
spectral — of sheet materials measured, 376(FB*29*)

Vision
acuity
contrast thresholds in practical problems, 1065
data applicable to Plan Position Indicator (PPI) displays, 861
effect on — of small variations in power of spectacle lenses in monocular vision, 373(FA*1*)
and light adaptation, 374(FA*16*)
peripherally observable test flashes
probability of observation and the influence of knowledge of target location, 1069
recognition of forms against a complex background, 758
separations between adjacent signals on a simulated PPI radar scope, 861
adaptation
vernier, stereoscopic, and single line — in absence of involuntary eye movements, 373(FA*12*)
chromatic, 500
dependence of corresponding colors on different, 500
human electroretinogram elicited by flickering 10 millisecond light stimuli under conditions of, 393
opponent-colors theory to predict changes in brightness, saturation, and hue with, 405
and sensitivity functions of human color vision, 172
dark
color temperature of stimulus and scotopic thresholds, 1093(L)
function of intensity and distribution of light
preadaptation conditions of 2500, 500, 100, 20, 4, and 0.8 ml, 401
hue durations and, 118
pre-exposure tolerance
of dark-adapted fovea, 67
of fovea adapted to different brightness levels, 266
probability of observation of peripherally observable test flashes, 1069
influence of knowledge of target location on, 1069
light
visual acuity and, 374(FA*16*)
astigmatism
interfocal circle on the conoid of, 373(FA*11*)
binocular
concept of distance in affine geometry, 309
Luneburg's theory
horopter and alley experiments as experimental test of, 514
magnification devices and stereoscopic depth resolution, 278
stereoscopic
depth discrimination
binocular magnification devices, 278
convergence and, 269, 303(L), 907(L)
effects of target separation and distance, 122
Howard-Dolman apparatus and effect of viewing distance, 837
qualitatively with diplopic images, 116, 374(FA*13*)
unequal luminosities of images in the two eyes and its effect on, 380(SA*15*)
vertical misalignment and, 841
viewing distance effect with the Howard-Dolman apparatus, 837
suprathreshold — brightness summation and field size and luminance, 171
color
discrimination of chromaticity differences of very small areas, 381(SB*33*)
luminous efficiency of observers and its relation to color-mixture, 382(SB*35*)
perception
dependence of corresponding colors on different chromatic adaptations, 500
protanopes and deuteranopes
neutral points in, 640
sensitivities to color differences, 382(SB*37*)
sensitivity functions of human — and rapid chromatic adaptation, 172
subjective sharpness of simulated color television pictures, 681
theory of, 1002(B)
opponent-colors
anomalous trichromatic color vision, 1075
prediction of changes in brightness, saturation and hue with chromatic adaptation, 405
psychological color specification system, 416
cone — mechanisms, 379(SA*2*)
cornea
contour of — photographed with a new photokeratoscope using a hemispherical object surface, 374(FA*14*)
discrimination
chromaticity — of very small areas, 381(SB*33*)
foveal brightness — and spatial effects, 274
of photographic detail and effect of image motion, 379(SA*13*)
with stabilized retinal images, 373(FA*2*)
eye
movements
involuntary drifts and saccadic — and the stimulus conditions, 987
optical and photoelectric analog of, 721
physical measurement of visual pigments in living, 379(SA*3*)
spherical aberration of, 901(L), 903(L)
choice of axis, 903(L)
glare discomfort and pupil diameter, 649
luminance
and duration of visual stimulus, 374(FA*15*)/845
human electroretinogram, 374(FA*15*)/845
sinusoidal flicker perception and quantum efficiency of phototopic vision, 379(SA*12*)
spatial variations of — and nonlinear response of the eye, 373(FA*3*)
myopia
night — and empty field
infrared skiascopic measurements of refractive changes in dim illumination and in darkness, 60
phototopic
quantum efficiency of — and sinusoidal flicker perception, 379(SA*12*)
pupil
diameter and glare discomfort, 649

Vision (Continued)
retina
absolute threshold and — noise, 634
human electroretinogram
and effect of stimulus duration, 167, 374(FA*15*)
size and form of *a* wave of human electroretinogram, 364(FA*15*)/845
size and form of *b* wave of human electroretinogram, 167, 384(FA*15*)/845
flicker and color adaptation in, 393
functional receptor units in, 379(SA*1*)
images
blur of, 907(B)
stabilized — and visual discrimination, 373(FA*2*)
photochemical activity of, 379(SA*11*)/851
temporal resolution of visual mechanism and, 851
visual purple
bleaching of frog, 1048
sensitivity
visual — to rate of electrically produced intermittence, 379(SA*11*)/851
spontaneous excitation and frequency-of-seeing curves, 661(L)
theories of, 309
concept of distance in affine geometry and its applications in, 309, 1000(L)
threshold
contrast — measured with dots and Landolt rings as function of object size and brightness, 1065

Warren Electronics, Inc.
new subsidiary of Perkin-Elmer Corporation, 231(N)
Wavelength
comparisons by corner-cube interferometer, 380(SB*21*)
measurement
semiautomatic method for spectroscopic wavelength and intensity, 456
standards
primary — of cadmium and its isotopic structure, 587
secondary
germanium lines in the 2019–4685 A region, 598
measured interferometrically in near infrared, 477
Williams, Horatio Burt
necrology, 366(N)
Wittel, Otto
retired from Eastman Kodak Company, 562(N)

X-Rays (see also *Radiation, Sources, and Spectra*)
diffraction powder patterns, standard, 232(N)
film
reciprocity law
failure in reversal region, 801
validity for high-intensity exposures in negative regions, 797
instrument for measuring metal coating to millionth of an inch, 1004(N)
protection, publication of the National Bureau of Standards, 305(N)
symposia
industrial applications of — analyses, Denver, Colorado, August, 1956, 305(N)
microscopy and microradiography, Cambridge, England, August, 1956, 365(N)

Young, Thomas
biography of, 230(B)
Ytterbium Chloride
absorption spectrum and magnetic properties of, 885

Zeitschrift für Kristallographie
publication renewed, 562(N)
Zinc Sulfide
potential distribution and localized photo-effects in — crystals, 611

Vol. 46

e, 587

8
477

regions,
th of an
andards,

Colorado,
England,

85

ts in —